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THE JOURNAL

OF THE

American Medical Association

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 109, No. 6 | COPYRIGHT, 1937, BY AMERICAN MEDICAL ASSOCIATION 535 North Dearborn Street, Chicago, Ill. | AUGUST 7, 1937

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A.M.A. SESSION—San Francisco—JUNE 13-17, 1938

Symposium on the Acute Abdomen

The August Number of the *Surgical Clinics of North America,* from the Mayo Clinic, contains a wealth of practical, *clinical* information—information that will prove decidedly helpful in understanding and dealing with diseases of frequent occurrence in medical as well as surgical practice.

In the Symposium of 7 Clinics on the Acute Abdomen are included Indications for Operation in cases of Gastric Resection; Newer Concepts in the Management of Acute Cholecystitis; Acute Appendicitis; Acute Intestinal Obstruction; Acute Enterocolitis of Adults; Acute Abdominal Allergy; and Differential Diagnosis in Diseases of the Intestines.

Then in addition to the Symposium you get *19 other practical clinics,* such as Postoperative Mental and Physical Changes and their Prognostic Significance; Major Surgery of the Aged; Rationale of Surgical Treatment of Hypertension; Fractures of the Spine with Involvement of the Spinal Cord; Management of Pelvic Inflammation; Operative and Roentgenologic Treatment of Adnexal Cysts and Neoplasms; Treatment of Edema in Children; Diseases of the Umbilicus of the Newborn Infant; Modern Clinical Laboratory Tests as Applied to Surgery, etc., etc.

Throughout this August Number you will find special regard for practical detail—today's methods of diagnosis, operative technic, and general treatment. It is a true example of the practical material that you get in the *Surgical Clinics of North America,* number after number.

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THE JOURNAL of the American Medical Association is published weekly by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. Subscription price, $7.00 a year. 25c a copy. Canadian $8.50. Foreign $11.00. Entered as second class matter June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879.

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 109, No. 6 — COPYRIGHT, 1937, BY AMERICAN MEDICAL ASSOCIATION — CHICAGO, ILLINOIS — AUGUST 7, 1937

NEUROLOGY—PAST AND PRESENT

CHAIRMAN'S ADDRESS

HENRY R. VIETS, M.D.

BOSTON

The beginnings of neurology as a separate discipline of medicine are so clearly defined that one may say: Neurology began with Romberg, a hundred years ago. His famous "propedeutic clinic" at Berlin, where systematic neurologic examination and clinical diagnosis were first carried out, was an active institution in 1837, and his textbook on nervous diseases, the first formal treatise on the subject, followed in 1840 and 1846. Almost contemporary in Paris that strange and interesting figure Duchenne of Boulogne was haunting the larger Paris hospitals, delving into case histories and unselfishly devoting himself to neurology and electrophysiology. An even more important Parisian figure was soon to follow in Charcot, who created the greatest neurologic clinic of modern times and gave lessons in visualization which few students could ever forget. Marie and Dejerine carried on the great French tradition even to our times, as did Erb in Heidelberg, following the footsteps of Romberg. In England, Hughlings Jackson and Gowers, building on the sound framework of the German and French schools, brought to virtual completion the foundations of structural clinical neurology as it is known today. In America, Weir Mitchell, physiologically trained by Claude Bernard, Dana, with his textbook of 1892, and J. J. Putnam added new knowledge to neurology and pointed the way to the advances that were to take place in the twentieth century. Thus by 1900 neurology was well established in most medical schools and hospitals. Although few professorial chairs were founded and neurology was largely taught by the department of medicine, its place in the hospitals was recognized, at least in the outpatient department, and the neurologist was no longer called "the electrician," as he was at the Massachusetts General Hospital in the eighties.

At the turn of the century, therefore, most of the intrinsic nerve and spinal cord diseases were known, the larger tracts had been identified, the motor cortex had been partly demonstrated in animals, and gross anatomy and pathology were beginning to be understood. Brain and spinal cord tumors were soon partly localized, and at least one surgeon had removed a meningioma from the brain, although in opposition to the advice of the attending neurologist. Expert in diagnosis, the neurologist in 1900 was equipped with only a few methods of treatment. Iodides, mercury and bromides were almost his only defense, and many believed that a brain tumor could never be successfully removed. The only exception was with regard to the surgical treatment of peripheral nerve injury. In this field much had been learned since the American Civil War. In such a state of relative therapeutic nihilism, however, clinical neurology was nearly at a standstill. After a few years of stagnation, just before the Great War, it received a new stimulation from three important sources, all from outside its narrow specialism of clinical neurology.

STIMULATION OF CLINICAL NEUROLOGY BY DISCOVERIES

First to awaken neurology was the discovery of a specific test for syphilis by Wassermann, the identification of tabes dorsalis and dementia paralytica as syphilitic diseases, the diagnosis by examination of the cerebrospinal fluid, and the advent of an astounding pharmaceutical in arsphenamine. Neurologists stirred themselves, lumbar punctures were done, usually with complete surgical regalia, and intravenous treatment was started with quarts of diluted arsphenamine. The younger men soon became adept with their hands and used the new tools with ease, much to the astonishment of their elders. Much of neurosyphilis was allowed to slip away, nevertheless, into the hands of the dermatologists in the "South Medical" department, as it was called, at least at the Massachusettts General Hospital, in those days. Neurology needed other stimuli to keep awake and one, or really two, were soon to follow.

In Liverpool, and later in Oxford, neurophysiology was rapidly being pushed forward by the greatest master of our times, Sherrington. In his "Integrative Action of the Nervous System," published in 1906, much unplowed ground was cultivated and a new, dynamic concept of the reflex functions of the nervous system was set forth. To his laboratory came a pupil from America who ultimately was to establish securely a new branch of medicine, neurosurgery. Inspired by Sherrington and not unmindful of the contributions of Horsley and his teacher Kocher, Cushing had so far advanced the art of neurosurgery by 1914 that surgical treatment was soon offered, and most gratefully accepted, by about 10 per cent of our patients. Here at last was the therapeutic stimulus so badly needed by neurology. Sherrington and Cushing, leading a great band of followers, revolutionized neurology. Without them should we be much further along today than we were in 1914? The force given by these two physicians slowly overcame the inertia of a nearly static part of medicine, which had tended to make neurologists into expert diagnosticians but feeble therapeutists. Sherrington added the fundamental research point of view by continually augmenting our knowledge of the function of the nervous system and stimulated a host of like minded pupils. Cushing, with his associates and pupils, although at first almost single handed, brought

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Read before the Section on Nervous and Mental Diseases at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1937.

to neurology a method of treatment which we now find useful in nearly half our patients. Finally came the World War, and after 1919 neurology, taking on its present form, grew rapidly—and the end is not in sight.

PROBLEMS ARISING OUT OF THE WAR

The war brought a host of problems which overtaxed the capacity of the then available supply of neurologists and the few trained neurosurgeons. War neuroses and peripheral, spinal cord and brain injuries were so numerous that, failing neurologists, psychiatrists, physiologists and even psychologists were pressed into action and general and orthopedic surgeons were forced to handle the strange material. Infectious diseases, especially epidemic meningitis, soon tested the ingenuity of the neuropsychiatric division of the medical corps in this country, only to be followed here and overseas by an overwhelming disease, lethargic encephalitis. The lack of adequately trained men was felt on every hand and once the war was over, in 1919, many schemes were proposed to establish neurologic institutes and revamp the inadequate teaching of diseases of the nervous system in our medical schools. There was much discussion, but finally most of the schemes were abandoned. The pressure, however, was too great to be ignored and gradually adjustments were made in both the development of clinics and in teaching.

GROWTH SINCE THE WAR

It is not my province to give a complete outline of all the changes that have taken place in neurology since 1919. To many neurologists they have been part of their daily life. The great schools of Philadelphia and New York have been continued, as have those of London, Berlin and Paris. The school in Boston, never perhaps so important as those in Philadelphia or New York, has gradually become revolutionized and it is about this development that I wish to speak briefly, using it as a basis to illustrate the whole subject. I think our experiences in Boston have not been unusual, in spite of the rapid growth in interest shown by the number of workers engaged in research and teaching. There has been, moreover, an expansion of the clinical facilities, and this change at one institution, the Massachusetts General Hospital, may be used to make my point. A similar story might be told of the changes at the Boston City Hospital.

Twenty years ago, two beds in the medical service of the Massachusetts General Hospital, with none definitely assigned to neurosurgery, were considered sufficient for a general hospital of 300 beds. The outpatient department was the home of neurology. Occasionally spinal cord or brain tumor was suspected in a patient and thus use for the two beds was sometimes found. This small unit, not always kept full by the neurologic department, has now grown into an independent one of twenty-four beds, one half given to neurology and the other half to neurosurgery. Residents, house officers, a neuropathologist, a cerebrospinal fluid technician, research physicians, social workers and third and fourth year students have joined the visiting neurologists and neurosurgeons to make up a coordinated unit, diagnosing and treating more than 500 patients a year, one fifth of whom proved to have tumors of the brain. This ratio, I suspect, would not be found in many other hospitals, particularly hospitals that draw on a single city for their supply of patients. It should be pointed out, nevertheless, that nearly half of the patients who enter the neurologic ward at the Massachusetts General Hospital do not leave without some sort of surgical treatment. The neurologist and the neurosurgeon, therefore, must in the future go hand in hand and the relationship is bound to be closer between neurology and neurosurgery than it ever was between neurology and psychiatry.

The clinical neurologist, treading his way carefully in private practice so as not to disturb his status as a "nerve man" and thereby lose the largest part of his practice with the psychoneurotic and the borderline psychotic, must become in the future, nevertheless, either a psychiatrist with neurologic leanings or a clinical neurologist, closely bound to neurosurgery, neurophysiology and the fundamental sciences of neuro-anatomy and neuropathology. The latter individual would appear to be the proper person to head a neurologic department in a general hospital or medical school. In some instances, in recent times, the neurologic director of a department has been replaced by a neurosurgeon, a neurophysiologist or a neuroanatomist. If such is the case, restraint may be needed to prevent the individual interests of the director in his special field overspreading the whole clinic. As broad as may be the training of a neurosurgeon, one cannot help but view with a little apprehensiveness the effort being made to replace the neurologist by an active surgeon as head of the department. Neurosurgeons may be good neurologists, as certainly the best of them are, but their main interest must necessarily be in surgery and not in the larger clinical field of neurology. The ideal arrangement would be for the man with the broadest outlook to head the department and to have his neurosurgeon on a practically equal footing with himself in the division of the number of patients. There may be exceptions to this, for the man, whatever his departmental label, is more important than the chair in which he sits.

In the year 1936 about 500 patients were discharged from the combined neurologic and neurosurgical services of the Massachusetts General Hospital. While in the hospital, 300 patients were directly under the care of the neurologic staff, while the other 200 fell to the neurosurgical department. It is worth noting that something over 100, or 20 per cent of these patients, suffered from brain tumor and another 5 per cent from spinal cord tumor. Even though the clinic does not admit patients with acute brain trauma, it will be seen nevertheless that 30 per cent of the patients require surgical treatment for neoplastic disease. If there is added to this the patients operated on for various types of chronic nervous disease, repair of peripheral nerves, the diagnostic tests such as ventriculography, and those requiring operations, curative or palliative, for pain, one readily sees that nearly half the work in an active neurologic ward is done by the surgeon. This, I am sure, is in great contrast to the situation twenty years ago.

In hospitals in other cities the situation, however, is quite different. The medical department still directs neurology, and neurosurgery, if there is such a separate division, is under general surgery. The time has come when the facilities offered not only for diagnosis but for treatment of nervous diseases is of such importance to the general public that special departments with an adequately trained personnel must be more widely available in this country. Too many patients still enter the hospital with tumors of the brain, already blind from long standing increased intracranial pressure, or having had one or possibly more abdominal operations

prior to the disclosure of a spinal cord tumor as the cause of their discomfort. It is no longer possible for the general physician or surgeon either to diagnose or to treat at least one half of the neurologic cases that appear in his practice. He must have help, and help should be easily available.

If surgical treatment is used on half our patients, we must not neglect the other half of a neurologic group. There is much to be offered now in the treatment of meningitis and of the acute infections of the nervous system, those caused by viruses, and some of the more intrinsic degenerative conditions. If the neurologist keeps at least part of his patients with neurosyphilis, a wide field of therapy is offered and practical cure of half of them is not unlikely. There are, moreover, many new drugs available, such as prostigmin for myasthenia gravis, which are slowly changing our whole therapeusis.

RESEARCH AND TEACHING

Finally, we have additional duties to perform, at least those of us associated with clinics in the larger medical units. Not only must we treat our patients but we have the burden of advancing the subject by research and passing our knowledge on to a future generation by teaching. Much of our research originates outside the clinic, particularly in the laboratory of the neurophysiologist. From Sherrington's laboratory and in this country from the workshop of his illustrious pupil Professor Fulton of the Yale University School of Medicine have come many of the ideas with regard to the function of the nervous system which we have been able to apply to clinical neurology. Problems, too, are continually presented from other clinics in a great hospital by, for instance, the ophthalmologist, the aurist, the orthopedic surgeon and the roentgenologist. The latter, by his expert technical advice, has been able to disclose so much of the bony structure surrounding the nervous system that our diagnostic acumen has been greatly increased. Ventriculography and the more useful encephalography have now become routine diagnostic procedures, augmenting the older examinations of the cerebrospinal fluid and blood. Electroencephalography, the newest product of the laboratory, is gradually entering the clinic, with possibly the greatest beneficial value of any advance made in neurophysiology of all time. Even to evaluate the products of the research laboratory requires of the neurologist a wide training in neurophysiology and its associated branches. The neurologist, moreover, should be able to guide the surgeon into profitable paths of therapy—something that has not always occurred in the past. Advancement, therefore, in a neurologic clinic which takes advantage of all the research available can be made only under the guidance of a physician with a wide vision. Fortunately, the neurologists in this country are not by any means taking their positions lightly, and there is evidence on every hand that they are assuming their duty with a steadfast purpose and unselfish devotion. The neurologic clinic in the future will justify itself only if it incorporates physiology, pathology, chemistry and physics in research problems. Similarly, the clinical neurologist must correlate and use all the laboratory data that present themselves from year to year, with that rare and most elusive of phenomena, good clinical judgment.

In addition to research and the development of the modern clinic, the teaching of neurology is undergoing a revolution in our medical schools. There is much, however, still to be done in this field. When one finds that only sixteen of our seventy-five credited medical schools have separate departments of neurology and that only twenty more teach neurology under a combined department of neuropsychiatry, one wonders how much of modern neurology reaches the medical student in the other thirty-nine schools. Even in the sixteen schools with separate departments the number of hours given to clinical neurology is extremely variable. Two schools head the list with 116 and 120 hours. Two give only forty and forty-two hours. The average time of instruction, usually given in the third and fourth years of the course, is slightly over sixty hours. Most of the larger schools have abandoned didactic lectures and only the smaller hold to strict textbook instruction, chapter by chapter. Teaching is best carried out by clinics in the second and third years, section work in an outpatient department in the third year, and clinical clerkships in the fourth year. This has been the scheme of teaching at the Harvard Medical School since the war and is now almost universal in the larger schools. One notes with satisfaction the number of fourth year students at the Harvard Medical School applying for the clinical clerkships, still a voluntary course. Nearly half of the class will take such a course during the next year. A few years ago the number of applicants was only about 10 per cent of the class. Thus we have, in instruction given as the result of voluntary application on the part of students, another index of the growing interest in neurology.

Analysis might be made also of the number of hours given to instruction in clinical neurology in the other twenty schools, where neurology is combined with psychiatry in one department. Such a tabulation from school catalogues is by no means easy, as often the hours are not separately listed, nor are the courses distinct enough to evaluate what part of the course is given over to neurology. One is impressed, however, by the fact that psychiatry takes up the larger part of the time, especially in schools where the departmental teaching is almost entirely limited to instruction given in a state hospital for mental diseases. This is the case in some of the smaller medical centers.

In a few medical schools, however, a strong psychiatric department takes over the brunt of the teaching of neurology—perhaps a sound scheme, but one that must leave the student wofully lacking in some of the important features of neurologic training. If one considers that one fifth of the patients in a neurologic clinic have tumor of the brain, how many such patients are likely to be seen in a psychiatric ward? In other schools neurology has been so divided that the department, as such, is not to be found in the school catalogue. Neurosyphilis is in the hands of the syphilologist, neurosurgery is taken over by the surgeon, the neuroses and psychoses fall to the psychiatrist, and all the rest of neurology to the department of internal medicine, save possibly for a few epileptic patients lost in the outpatient department. Can neurology hope to advance with such dispersion of her interests? That, of course, depends in part on the caliber of the men in the various teaching departments. Many internists are good neurologists or have been in the past. Nearly one fourth of Osler's early papers were neurologic in character and it is said that one third of his consultations dealt with obscure neurologic diseases. It seems unlikely, however, at present, with the rapid advancement in other fields of medicine as well as in neurology, that an internist would ever have the time to learn

the complete technic of modern neurologic diagnosis and treatment. Encephalography, for instance, one of our most important diagnostic procedures, will not, in all probability, find its way on to the medical wards, as has the more simple maneuver of lumbar puncture.

GROWTH OF SOCIETIES

Each year makes clear the ever increasing complexity of our position and the necessity for a continuation of the control of our own destinies as a unitary part of a great hospital or medical school. Had we not already done so in the past, should we have seen, in the last twenty years, the remarkable growth of the American Neurological Association and this section of the American Medical Association? In 1916, when this section was called to order at Detroit, a mere handful of neurologists and psychiatrists met in a small schoolhouse adjacent to the main meeting hall. At that time there was serious talk of abandoning the section or merging with the Section on Practice of Medicine. The secretary, moreover, in those days, only twenty years ago, had to write to men urging them to present papers. In my last three years as secretary, from June 1934 to June 1936, the situation has so far reversed itself that the handful at times had grown to 200, and only one in three or four of the applicants for a place on the program could be accepted. Witness too the vast amount of research which is reflected in the sixty volumes of *Brain,* the eighty-five volumes of the *Journal of Nervous and Mental Diseases,* and the thirty-seven volumes of the *Archives of Neurology and Psychiatry,* and the enthusiasm shown at the first International Congress of Neurology at Berne in 1931 and at the second in London in 1935 with forty-two countries represented at each and from eight to nine hundred physicians registered.

One notes also the growth and importance of the local neurologic societies, their helpful place as a "trying out" center for papers later to appear at the national association meetings, the development of the neurologic institutes in the larger cities, the publication of collected reprints, case books, smaller journals, such as the one recently inaugurated at Los Angeles, and the year books with their invaluable summaries. Particular attention should be called to the review of neurologic and psychiatric literature, so long carefully edited by Dr. Bassoe and now in other, but equally capable, hands. The yearly publications of the Association for Research in Nervous and Mental Diseases again reflect the interest shown in neurology.

The number of individuals, moreover, working on diseases of the nervous system has become almost appalling. From a scant half dozen physicians gathered together in Boston in 1920, recently eighty-five physicians doing work in psychiatry, neurology, neurosurgery, neuro-anatomy, neurophysiology and psychology met to honor one of their leaders. The trend is noted in the number of students entering the field and the application for certification by the Examining Board of Neurology and Psychiatry. Perhaps the most important sign is the large number of young men and women seeking knowledge in our laboratories, schools and hospitals. For the older neurologists this has come as a great challenge, for these young people crowd in on us and demand the best of training and the largest scope for their potential abilities. We must uphold those standards set by Romberg, Charcot, Sherrington and Cushing if we are to keep faith with our predecessors and do our duty to those who come after us.

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ACTIVE AND PASSIVE IMMUNITY AND PORTAL OF ENTRY IN POLIOMYELITIS

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Attempts have been made to render Macacus rhesus monkeys immune to poliomyelitis by injecting the living virus,[1] killed virus,[2] virus attenuated by heat,[3] virus attenuated by drying[4] or virus attenuted by various chemicals (solution of formaldehyde,[5] sodium ricinoleate,[6] aluminum hydroxide,[7] phenol[4]), by injecting weak strains of living virus[4] or by injecting higher dilutions of more virulent strains.[4] These antigens have been introduced percutaneously,[4] intracutaneously,[8] intratesticularly,[9] intrasplenically,[10] intracerebrally,[11] by way of the gastro-intestinal route[12] and by spraying the nose.[13] Active immunization has also been tried by injecting virus in combination with immune serums obtained from monkeys,[14] sheep,[15] horses[16] and human beings[17] or by injecting neutralizing serums first and then virulent strains of the virus.[18]

The evidence on active immunization is confusing. Animals which have been immunized are presumed to have humoral immunity if virus-neutralizing antibodies are observed in their blood serums and a tissue type of immunity if they survive subsequent intracerebral injections of the living virus. Doubt has been expressed as to whether neutralizing antibodies (humoral) are true measures of immunity, since even though animals may have neutralizing antibodies and a high titer, they usually succumb to the disease when subsequently inoculated intracerebrally with poliomyelitis virus.

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Read before the Section on Pediatrics at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1937.

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18. Brodie, Maurice, and Goldbloom, Alton: Active Immunization Against Poliomyelitis in Monkeys, J. Exper. Med. **53:** 885 (June) 1931.

Certain tissues of the body have no resistance to an infection. On the other hand, certain tissues of the same host are highly resistant to the same infection. The virus of rabies has its portal of entry through the broken skin, and animals and men are immunized against this virus by subcutaneous injections, after which neutralizing antibodies may appear in the blood serums. Animals thus immunized are protected against the rabies virus when inoculated intramuscularly, but despite previous active immunization procedures some animals succumb to minute amounts of virus if subsequently inoculated intracerebrally.[19]

Protection against disease is usually only relative, rarely absolute and often easily diminished or lost. In a general way, natural or acquired immunity could be defined as that amount of resistance possessed by the host that protects him against the ordinary exposure dose at the usual portal of entry. In the past, tests of tissue immunity and general resistance against poliomyelitis have been made by introducing the virus intracerebrally or intranasally. When a potent strain of virus is introduced by way of these portals of entry, paralysis of at least some muscle groups will appear in animals that are otherwise naturally immune, but more likely massive quadriplegia will develop, which is often followed by death. Animals rarely escape the disease when a virulent strain is used. Since but few human beings get the disease although many are exposed and since abortive types without paralysis are said to be common, one wonders whether it is logical to test protection by methods that produce paralysis or quadriplegia in every animal used.

Although it has been claimed that immunity has been brought about by inoculating animals with chemically treated virus, it is not certain from reading the reports whether animals thus immunized have been other than merely inoculated with live virus to which some chemical had been added. When living virus has been shown to be attenuated or actually killed, it has lost most of its ability to immunize actively.[5b] After one reviews the literature, two points seem clear: First, artificial immunity may be established against poliomyelitis if the living virus is injected as the antigen;[1] second, many monkeys acquire the disease during this process of active immunization.

Few children contract poliomyelitis; of these, few have massive paralysis and still fewer die. Yet despite the paucity of cases, the relatively low morbidity and the low mortality rates, such great fear is had for this disease that the use of any efficient method of vaccination against it would have widespread and immediate use. Since there is no way to distinguish susceptible persons from those who are immune and since the factors which predispose toward the disease are unknown, it is obvious that vaccine antigens must be safe. Thus they cannot be viable, and, paradoxically, if they are not viable they seem to be of no value. In fact, not only may it be inadvisable from a practical standpoint to immunize actively with virus antigens but it has been suggested that such vaccines may even be dangerous to human beings.[20]

THE PORTAL OF ENTRY

If local tissue immunity develops at the site of frequent exposure to noxious materials, then in the study of any disease a knowledge as to the portal of entry becomes of primary importance in order that one may understand the methods of host protection and immunity. Nature needs no special protection against virus in the brain and cord, covered as they are with thick bone and dura. Hence, intracerebral injections are no gage of either resistance or immunity, since an animal amply protected at the normal portal of entry might easily come down with the disease after this test.

Most American research workers in the field of poliomyelitis consider the first and thirteenth nerves the avenues by which the virus enters the body, notwithstanding the fact that it is not easy to recover the virus from the nasal passages of either man or animal and notwithstanding the fact that to produce the disease in monkeys when the intranasal route is used the nose sometimes has to be prepared or large amounts of from 5 per cent to 10 per cent virus must be carefully instilled into the nostrils for a few days. If the olfactory area is the place where the virus enters, then the virus would have to be breathed in with either the dust or the moisture or from the breath of other individuals. The last possibility does not seem likely, since monkeys never contract the disease from each other nor has a second case ever developed in our contagious wards. (The recent Los Angeles epidemic seems to be the only exception regarding obvious hospital contagion.) In a few experiments I have found that monkeys remained well even after breathing for a short time while a 10 per cent virus vapor suspension was sprayed in their faces.

It has been inferred that after the olfactory connections were severed the disease was not produced when virus was injected intravenously. There is no evidence that the disease is spread by way of the blood stream but, quite apart from this, these experiments have been repeated and it has been found that, when proper doses were used, section of the olfactory bulb did not protect animals after virus was injected intravenously.[21]

To explain why poliomyelitis develops in animals after intravenous injection, it has been suggested that the virus thus injected is excreted onto the nasal mucosa and then reabsorbed by the first and thirteenth nerves, after which the animal gets the disease. That blood vessels experimentally surcharged with the virus may excrete it via the gastro-intestinal tract, the upper end of which is in the stomadeum in the region of the first and thirteenth nerves, and that the virus may even be isolated occasionally from the nasal areas of these animals is admitted. Inferentially, however, the conclusion has been broadly drawn from these and other experiments that if the olfactory area could be blocked the human disease could be prevented. Hence, this area has been sprayed with chemicals as a prophylactic measure on the theory that if it is the portal of entry then spraying it with such chemicals will prevent infection at that point and therefore prevent the disease. Such procedures should and do prevent the experimental disease when the virus is subsequently introduced intranasally, since they prevent the approximation of axis cylinder and virus. However, such procedures (the administration of 1 per cent zinc sulfate intranasally) do not prevent the experimental disease from occurring after a sufficient amount of virus is introduced intravenously,[22] nor do they prevent the production of the disease when the virus is introduced by way of the gastro-intestinal tract.

19. Galloway, I. A.: The "Fixed" Virus of Rabies, Brit. J. Exper. Path. **15**: 97 (April) 1934.
20. Leake, J. P.: Poliomyelitis Following Vaccination Against This Disease, J. A. M. A. **105**: 2152 (Dec. 28) 1935.
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22. Toomey, J. A.: Nasal Sprays of One per Cent Zinc Sulfate and Experimental Poliomyelitis, in preparation.

Sicard [23] suggested that the virus spreads from the gastro-intestinal tract to the cord by way of the sympathetic fibers. Wickman and even Harbitz and Scheel first thought that the disease must have its entry through and spread from the gastro-intestinal tract. The gastro-intestinal tract is often involved before somatic paralysis appears.[24] Reflex changes similar to those which appear in persons with typhoid fever occur.[25] The height of the spring and fall curves of the disease occur about the same time as those of typhoid fever, a gastro-intestinal disease.[26] Many early symptoms of poliomyelitis are referable to the gastro-intestinal tract. The disease can spread along the sympathetic fibers from the intestine.[27] The virus acts differently when injected by way of the gastro-intestinal tract than it does when injected by any other route.[28] When the gastro-intestinal tract is disturbed, paralysis is produced almost immediately when the virus is injected intracerebrally.[29] When either the virus or enteric toxins are injected intracerebrally nothing happens for days, but when enteric toxins and the virus are combined and injected, paresis or paralysis may occur immediately.[30] The agglutinin titer of the blood serum against enteric organisms is disturbed in this disease.[31] In short, the clinical symptoms of the disease are best understood if a spread is presupposed along the sympathetic, parasympathetic and chorda tympani fibers to the lumbar, cervical and bulbar areas of the cord [32] from a portal of entry in the gastro-intestinal tract.

METHODS OF OBTAINING A PASSIVE IMMUNE PRINCIPLE

Many efforts have been made to obtain an efficient passive immune principle. To that end, horses,[33] sheep,[34] monkeys,[12] guinea-pigs, rabbits, dogs and goats [35] have been immunized with suspensions of virus and the serums of these animals tested for their neutralizing values, with variable results. Artificial serums have usually failed to protect animals that had been previously or simultaneously inoculated intracerebrally with the test virus.

Convalescent human poliomyelitis serum has been used prophylactically and therapeutically,[36] and its value has been questioned not only on clinical grounds but because it failed to immunize animals passively. It has been stated that the virus was fixed in the neurons and that human poliomyelitis convalescent serum might not be able to destroy it there.[37] It was likewise thought that the pathogenesis of the disease precluded possible beneficial effects of serum therapy, "since serum would have great difficulty in reaching and penetrating in through the central nervous system, and it could not dislodge the virus apparently fixed to nerve cells and thus prevent further propagation." [38] It is fairly certain that controlled clinical and experimental studies have shown that convalescent serum is not very efficient in the treatment of preparalytic poliomyelitis.[39] As a result, the opinion is general that neutralizing antibodies are no indication of immunity to experimental poliomyelitis and that passive immunity in the human being is nearly worthless, and convalescent serum is employed only on the basis that it can do no harm and that it may do some good. It has even been intimated that such serum may be harmful.[40]

The fact that animals die of the disease even after treatment with potent serums when the infecting dose is delivered intracerebrally or intranasally does not necessarily mean that the animals lack immunity. Definite immunity may be demonstrated if the infecting dose is delivered at the proper portal of entry. The only animals that are protected from the effects of subsequent intracerebral injections are those that have recovered from a massive attack of the disease following a previous intracerebral injection or intranasal instillation of the virus or following active immunization with multiple subminimal doses elsewhere, and even these may develop the disease if the doses of the homologous virus administered the second time are massive in comparison to those ordinarily used to produce the disease.[41] Even here, immunity, although tissue in character, may be relative.

The technic that I have used in producing the disease by the gastro-intestinal tract has been considered drastic, but even so the clinical disease as it appears in the human being has been reproduced in the monkey by these drastic procedures, and they have provided definite clearcut tests of protection. A normal monkey is not easy to infect by the gastro-intestinal tract. In fact, the normal monkey is immune to poliomyelitis unless the virus is administered artificially (e. g., injected intracerebrally, subserosally or between clamps into the intestine or instilled intranasally). However, an animal can be made so susceptible that even my drastic methods need not be employed, and the disease can be produced merely by placing the virus in the intestine.[42]

I have mentioned elsewhere the belief that the spread of virus is usually stopped in normal animals by some factor found in the white and not in the gray fibers.[43]

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28. Toomey, J. A.: The Histologic Aspect of Experimental Poliomyelitis Produced via the Gastro-Intestinal Tract, Am. J. Dis. Child. **52**: 1361 (Dec.) 1936.
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33. Dixon, S. G., and Rucker, J. B.: Failure to Obtain Potent Serum from Horse Injected with Poliomyelitis Material, J. Infect. Dis. **23**: 543 (Dec.) 1918. Pettit, August: La poliomyélite antérieure aiguë: Biologie, Gaz. d. hôp. **104**: 221 (Feb. 14) 1931. Jungeblut and Hazen.[12]
34. Pettit, A.: Sur la préparation d'un sérûm neutralisant le virus de la poliomyélite, Compt. rend. Soc. de biol. **81**: 1087, 1918.
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36. Landon, J. F.: Serum Therapy in Preparalytic Poliomyelitis, J. Pediat. **5**: 9 (July) 1934.
37. Brodie, Maurice: Distribution of Virus of Poliomyelitis in Cerebrospinal Axis of Monkeys, J. Immunol. **25**: 71 (July) 1933.
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43. Toomey, J. A.: Adsorption of Poliomyelitis Virus by Cholesterol, Am. J. Dis. Child., to be published.

This seems incongruous since it has been shown that virus spreads over the axons of both medullated and nonmedullated nerves, although medullated nerves must be irritated before infection occurs. The disease was easily brought about some years ago when virus was injected into the sciatic nerves, but subsequent consistent failures brought to light the fact that there was some difference between the animals then used and the animals formerly used.

Probably the difference was due to the fact that the diet of the earlier group was devoid of vitamin D and, since later animals were fed viosterol, and thus possibly had better myelinated nerves of a high cholesterol content, it might explain why the more recently acquired animals did not contract the disease when inoculated peripherally.

The difference in the solid elements between medullated and nonmedullated nerves is chiefly in the cholesterol content; it is high in medullated (3.5 per cent) and low in nonmedullated fibers (0.7 per cent).[44] Cholesterol adsorbs or destroys poliomyelitis virus.[43] When rickets is produced in rats by lack of vitamin D, the nerve myelin becomes involved, since in these animals a foamy condition of the myelin sheath appears, probably the result of edema of the neurokeratin framework.[45] When rickets is produced in monkeys, probably the nerve myelin and its cholesterol content become involved and the virus is not adsorbed or destroyed. In any event, it is a fact that the disease is easily produced in such animals.[42] On the other hand, when monkeys have had plenty of vitamin D and inferentially have plenty of cholesterol and good myelinated nerves, the disease cannot be produced via the gastro-intestinal tract. The subcutaneous area of normal skin has a high cholesterol content (19 per cent), and from 750 to 1,100 mg. may be found in the total blood volume of an adult. Suggestive indeed in view of certain experiments on blood is the fact that the cholesterol content is increased during pregnancy. Suggestive likewise is the fact that massive amounts of virus must be injected into the blood stream before the disease is produced. Suggestive likewise is the fact that massive amounts of dihydrocholesterol (coprosterol and B-cholestanol) and cholesterol are contained in the normal intestine, which conjugated with virus could easily inactivate it and prevent infection from occurring.

If virus enters by way of the normal gastro-intestinal tract, it might go into colloidal equilibrium with the free cholesterol elements contained in the intestine and be destroyed there. It could also be absorbed by the nerves, but spread to the cord could be prevented by the cholesterinized white fibers in persons with well myelinized nerves; in some persons the virus may not be adsorbed because of deficient myelin, and it could spread over the sympathetic and parasympathetic chains, along nerves that possibly have been previously sensitized to enteric toxins and that have direct communication from the intestine to the lumbar, cervical and bulbar areas.

Thus there might be little or no marked production of neutralizing antibodies if the mechanism of primary defense was carried out in a healthy myelinized nerve, and primary protection would be merely a detoxifying adsorptive colloidal phenomenon. If, however, nerve fibers were diseased or poorly medullated, virus might spread along nerves to cells of origin, causing destruction followed by inflammation,[46] and neutralizing antibodies might be formed. In experimental work neutralizing antibodies were found to be effective in preventing the disease in monkeys when the virus was introduced by way of the gastro-intestinal tract,[47] and when this portal of entry is used experimentally it will be found that neutralizing antibodies are a good index of immunity. Since nature heals with the production of antibodies, even though they are quantitatively variable, it still seems logical to try to produce an anti-poliomyelitis serum.

At present there is no evidence of a controlled nature that convalescent poliomyelitis human serum has any value in the treatment of the disease. Certainly there is no reason why it should be given to exposed persons. There is likewise no controlled evidence that convalescent serum will abort an attack of poliomyelitis. A physician therefore who does not use this therapy does not withhold a beneficial procedure from his patient. Before this therapy is discarded, however, it might be wise, as Kramer [48] suggested, to ascertain if it has any worth when used in massive amounts in the preparalytic stage of the disease.

Since this article was written, Levinson [49] has reported that he has used massive amounts of convalescent poliomyelitis serum in the treatment of preparalytic cases with good results.

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ABSTRACT OF DISCUSSION

DR. JOSEPH YAMPOLSKY, Atlanta, Ga.: Dr. Toomey has attempted to give an evaluation and a review of the literature on the problems of the active and passive immunity in poliomyelitis. It is apparent that, although 80 per cent of the population seem to possess a natural immunity, the devastating and almost immediate effect of this disease in a few of those who do not possess this immunity becomes at times alarming. The use of chemical agents sprayed intranasally and the injection of Kolmer's vaccine as well as Brodie's vaccine have especially come to our attention in the last decade. As yet I must agree with the author that no definite agent has been produced that is of proved value in active immunization. As to passive immunization, the use of convalescent serum is of special interest. Since it is known that many, or the majority of cases of poliomyelitis are of the nonparalytic type, it would seem to me that its value, if any, would be in the preparalytic state, and how is it possible, except in severe epidemics, to make a definite diagnosis of this stage of this disease? Yet, even in those cases in which serum was used and thought to be of value, its therapeutic results have been questioned by many observers. The problems of immunity in poliomyelitis would be made easier if the exact portal of entry of this virus could be established. The author has again attempted to confirm his theory of the gastro-intestinal entry and he has attempted by experimentation of the use or nonuse of certain vitamins to reaffirm his ideas. Flexner recently again reviewed this subject fully and as yet disagrees with the author as to the theory of the introduction of the virus by the gastro-intestinal tract. Unless this matter is settled fully, some solution of the problem of immunity in poliomyelitis must be awaited.

DR. JOHN FITCH LANDON, New York: In support of Dr. Toomey's theory concerning the gastro-intestinal portal of entry, it is interesting that Dr. L. W. Smith, pathologist, at the Willard Parker Hospital during the large 1931 New York City epidemic, examined fifty-six olfactory bulbs from human subjects and found surprisingly little microscopic change in them. Students at the Rockefeller Institute working with monkeys have also recently been impressed by this observation.

44. Bodansky, M.: Introduction to Physiological Chemistry, ed. 2, New York, John Wiley & Sons, Inc., 1930, p. 496.
45. Weaver, H. W. (Ohio State University Department of Anatomy): Personal communication to the author.

46. Toomey, J. A.: Poliomyelitis Virus and the Degeneration of Peripheral Nerves, Am. J. Dis. Child. **53**: 79 (Jan.) 1937. Toomey.[28]
47. Toomey, J. A.: Poliomyelitis Antiserum Obtained from Horses, Am. J. Dis. Child. **53**: 1492 (June) 1937.
48. Kramer, S. D.: Round Table Discussion, J. Pediat. **7**: 278, 1935.
49. Levinson, S. O.: Round table discussion on poliomyelitis at meeting of American Academy of Pediatrics, June 5, 1937, New York.

The author's conclusions concerning the value, and in particular the safety, of prophylactic vaccines are sound. Sufficient data have accumulated to justfy his stand that the advisability of employing prophylactic vaccines is very questionable. Interesting are the observations on the relative susceptibility of monkeys in which rickets is produced. However, from a clinical point of view it should be noted that children contracting poliomyelitis usually appear to have been in robust health with little evidence of rickets. The advisability of further trial of convalescent serum in massive doses is obviously a debatable question. Statistical analyses of large groups of cases treated with convalescent serum have in my opinion definitely proved that it is extremely doubtful. It is conceivable that the intravenous employment of serum might do some harm, since the intravenous use of any substance is always attended with some danger. In a fairly large series of cases at the Willard Parker Hospital, general reactions occurred in 18 per cent of the cases in which serum was administered by the intravenous route. The so-called preparalytic or nonparalytic cases show a low mortality and a low incidence of paralysis, so that the efficacy of serum treatment is extremely difficult to evaluate. At the Willard Parker Hospital, where no serum of any type has been employed since the epidemic of 1931, it is interesting to note that in 1932, 1933 and 1934 there were thirty-seven preparalytic cases with five deaths, while in 1935 there were 307 such cases with only two deaths. If we had become discouraged over our relatively poor results in 1932, 1933 and 1934, and had used serum in 1935, it is obvious what conclusions would have been drawn. Although there is no incontrovertible evidence that the intravenous use of serum may be harmful, to those of us who believe that the brunt of evidence is against it and that in the uncertain state of knowledge concerning the disease the foundation stone of therapy still remains complete rest, it seems reasonable to conclude that any disturbance of a patient who is apprehensive and hyperesthetic is a distinctly questionable procedure.

DR. PAUL H. HARMON, Chicago: I believe that too many deductions have been made by applying the results of experimentation on monkeys to the human disease. The simplest experiment that would be readily applied to the disease in man would be an attempt to isolate the virus from the intestinal tract. We did a series of these experiments last summer in Chicago. Of twenty such patients, we were unable to isolate the virus in a single instance from the nasopharynx, but were able to obtain it in five instances from the gastro-intestinal tract. It will be argued by some that such an isolation of virus from the gastro-intestinal tract represents virus that has been swallowed. We were able in nine cases to examine olfactory bulbs from fatal cases from that epidemic. Lesions were absent in every case in those olfactory bulbs. All such evidence points to the gastro-intestinal tract as the probable portal of entry of the virus. Another thing that has not been taken into serious consideration so far is the question of strains of virus. We were finally able to establish one such strain in monkeys. It appears that this strain is immunologically distinct from the PMV strain that has so far been used in many laboratory investigations. Animals that recover from the 1936 strain are all susceptible to the PMV strain. That has been the experience of others with local virus strains recently. Trask, in a recent article, has been able to show that there are at least three or four such strains, a situation quite comparable to that of encephalitis in which there is the Japanese type, the St. Louis type and the von Economo type. With regard to the question of vitamins, clinical observations in connection with persons who are susceptible to this disease would argue that lack of vitamins does not predispose to susceptibility to this disease, as those who contract the disease most readily are those who seem to be in most robust health. Certainly there is no deficiency of vitamin D in children toward the end of summer or in early fall. The use of serum in this disease has been argued for many years. Apparently we are getting no further with this argument than we were five or ten years ago. I migh call to mind the experiences of Schultz and Gebhardt, who showed that serum used prophylactically in the severe disease of monkeys cut down the incidence of the disease from 93 per cent to 70 per cent. I might also recall the experience of Levinson in the last four or five year period in Chicago in which a negligible amount of paralysis was observed in preparalytic cases treated with serum. I believe, without a doubt, that serum has a beneficial effect in this disease when used under the proper indications.

DR. WILLIAM H. PARK, New York: I think that many know the results obtained by Drs. Aycock and Kramer in the New York 1936 epidemic. In a hospital in Brooklyn every entering patient was carefully examined, and the exact amount of preliminary symptoms noted. Every alternate patient, taken regularly in order, was given the serum. At the end of the epidemic, both Dr. Aycock and Dr. Kramer reported their experience in an article showing that there were more serious symptoms and, at the end, more slight paralyses in those who had had the serum than in those who had not, and that there was one more death in the group that had had the serum. In the city as a whole, I arranged that we did not give the serum in hospitals. When we calculated the difference between the hospital cases and the outside cases, we found that there was practically no difference except that those getting the serum had, on the average, a little greater paralysis.

DR. SIDNEY DAVID KRAMER, Brooklyn: Most physicians feel that the virus of poliomyelitis has its entrance to the body through the upper respiratory tract for the following reasons: 1. In spite of the major difficulties in obtaining a take in the experimental animal from human material, the virus of poliomyelitis has been recovered from the upper respiratory tract sufficiently often to be significant. 2. Efforts to recover the virus from the gastro-intestinal tract under normal conditions have been rather consistently negative, with the exception of the unpublished results just quoted by Dr. Harmon. Dr. Harmon is to be congratulated. Clark and Flexner and Scherp, although employing concentration methods, were unable to recover the virus from the intestinal contents of human beings and animals dying of the disease. 3. Infection of the experimental animal is relatively easily accomplished by the introduction of the virus into the nose, and this contrasts strikingly with the difficulties encountered in obtaining takes when the virus is introduced into the gastro-intestinal tract. Dr. Toomey's success in obtaining takes through the gastro-intestinal tract might readily be explained by the drastic measures he employs. 4. The epidemiology of poliomyelitis is that of a contact disease, like measles and diphtheria, in which it has been shown that etiologic agents enter the body through the upper respiratory tract. Dr. Park has just discussed the experiment conducted by the Academy of Medicine to determine the value of convalescent serum in the treatment of the disease. The results of this large experiment confirmed our own smaller alternate treatment experiment in Brooklyn and Hartford the same year (1931). Our results indicated that those patients who did not receive serum did quite as well as those who did. The same general impression prevails concerning the value of convalescent serum as a prophylactic measure. There is little or no evidence to indicate that human convalescent serum has any prophylactic value, and this in spite of the painstaking experiments of Brebner and Stokes. However, in view of the claims of McNamara and Levinson, were an unlimited amount of potent immune serum made available, it might be worth while reviewing the problem of the therapeutic and prophylactic value of such serum, using much larger doses than have heretofore been employed.

DR. JOHN A. TOOMEY, Cleveland: Dr. Landon brings up the question of rickets as a predisposing factor in poliomyelitis. I should have been more clear about this point. Flexner objected to our experiments because of the drastic methods employed to introduce the virus into the gastro-intestinal tract. I wished to put the animal in such a state that its gastro-intestinal tract would absorb virus immediately without using the drastic methods objected to. I found that if I produced rickets in the monkey I did not need to resort to drastic measures to produce the disease. I could not state that rickets is proved to be one of the predisposing factors in human poliomyelitis. To one who has always believed that the gastro-intestinal tract was the portal of entry in this disease, Dr. Harmon's remarks are encouraging indeed. Dr. Kramer states that poliomyelitis is a contact disease. Why then don't monkeys exposed to other monkeys with the disease contract this infection?

IMPORTANCE OF THE ADEQUATE TREATMENT OF FRACTURES IN RURAL HOSPITALS

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An accurate statement as to the exact number of fractures treated annually in the United States is virtually impossible. Estimates vary from 1,000,000 to 1,500,000. Of these a large proportion are treated in hospitals. The American Medical Association has registered 2,900 small general hospitals, many in country districts that each year admit and treat thousands of fracture patients.

When the fracture patients constitute a considerable proportion of the total number of admissions, as in industrial centers, there is generally sufficient equipment and trained personnel present to insure adequate treatment; but in some of the smaller places, where comparatively few fractures are seen, facilities for prompt and efficient care are not always available. Yet statistics of casualty insurance companies show that about two thirds of all major automobile accidents occur in rural sections, demonstrating that our high speed machine age accounts for an increasing number of fractures in country hospitals regardless of our capacity to care for them properly. Many such victims of motor car accidents are strangers, hurt far from home, and hence they have no choice in the selection of a physician. Thus the responsibility for their treatment is entirely on the institution to which they are admitted.

I have visited a number of small hospitals in the past year and made some investigation of fracture treatment. An appalling lack of interest is found in many places, every one with hospital privileges treating fractures of all types, except possibly fractures of the skull, which are referred to the surgeon. Also there seems to exist a belief that any doctor can set a broken bone or, if any attempt is made to segregate fracture work, it is turned over to the youngest and most inexperienced staff member because the tedious and time-consuming attention to detail required over a period of weeks makes such work unattractive to the busy surgeon as well as beneath his dignity in too many instances.

Analysis of a long series of cases in one of the larger hospitals showed that a considerable percentage of the patients admitted for open reduction, onlay, inlay or bone plating were referred from small hospitals, where there was no one sufficiently experienced to attempt such operations. Evidently such cases were treated by men who were not trained in fracture treatment, since a study of the history and x-ray films made obvious the fact that proper early reduction and immobilization would have made operation unnecessary in many instances.

It is true that small communities cannot support a properly trained orthopedic surgeon to supervise the fracture department, yet the need for skilful handling of severe fractures is nevertheless constantly present. Most of the patients who need special care cannot be transported to the larger institutions for treatment because of the elements of expense, time and condition of shock. That many of these small institutions, however, are in contact with orthopedic surgeons who understand the principles of fracture therapy, some who visit such hospitals as consultants can testify. The situation, then, is about as follows:

There are many small hospitals located in the field of action, with a special group of patients, who, because of the emergency nature of their cases cannot well be moved but who are in need of prompt treatment. At the same time, scattered over the country in the larger hospitals, are experienced orthopedists willing to give assistance. Isn't it only logical to attempt some means of combining forces toward providing sufficiently skilful treatment to give fracture cases the best possible chance for satisfactory results with a minimum of time and expense? I shall try to present here the point of view of one who has wrestled with the fracture problem in a small town, of one familiar with the difficulties in an isolated country hospital. It is the story of how we worked out a solution, a compromise, if you will, but one which keeps our patients in the local hospital, yet gives them the benefit of the experience of an orthopedic surgeon in a nearby city.

For twenty-five years I have been on the staff of one of these country hospitals and for the past fifteen years I have conducted a fracture clinic. The place in question, the Emergency Hospital at Easton, Md., is a fair example of an average country hospital. It is small, of seventy bed capacity, staffed by local physicians. It is situated in an agricultural community without large industries, and it admits annually a small number of fracture patients.

At first thought one would not consider our fracture problem an important one because of the few cases treated. This fact for a long time dulled our sense of responsibility to fracture patients, and it was not until our attention was called to some of the unsatisfactory results that we realized our shortcomings. In our hospital, as in most other institutions of its type, for many years the treatment of fractures was not given special consideration. Each man treated fractures occurring in his practice with no one else paying much attention to them, and it was simply taken for granted that any one who sustained a major fracture was destined to carry some deformity or disability for the rest of his life.

Seventeen years ago our hospital, with the cooperation of the Rotary Club, asked Dr. Robert W. Johnson to conduct a monthly clinic for crippled children. He did so, but for the first two years much of his time was unavoidably diverted from the clinic and spent in the operating room, where he opened and plated many ununited and imperfectly reduced fractures. Finally, he suggested to the staff that our handling of fractures could be improved, and he discussed with us the advisability of appointing one staff member for fracture service, as no one man treated sufficient fractures to stimulate a keen enough interest in the work. It was hoped that with only one individual in charge he would inevitably be interested in his department and that he would visit other clinics and keep himself informed as to the new and approved methods for handling fracture patients. In conjunction the other staff members agreed to refer their fracture cases to the new department and to allow the chief full responsibility for their care. We then went ahead.

The necessary equipment of Balkan frames, traction devices, fracture table and bedside x-ray equipment was procured through the generosity of friends. A room

Read before the Section on Orthopedic Surgery at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1937.

near the receiving ward was set aside for a fracture room, and Dr. Johnson promised to stand by with advice and assistance whenever necessary.

In the early days of our clinic this advice was eagerly sought. Our consultant was frequently called on the telephone; x-ray films were hurriedly dried and sent him for an opinion. Often he would come across Chesapeake Bay, in all kinds of weather, to advise and help in the management of some difficult case, generally without compensation. Evidently he had faith in the project he had encouraged and was willing to make any sacrifice to insure its success. As a consequence we believed in it, too.

When first established, the fracture service had no official status as a hospital department. It was operated entirely through mutual agreement among the members of the staff. But this informal arrangement placed the burden of proof on the chief of the service and stimulated him to prove the value of the innovation. After some years, during which time the clinic continued to grow and receive the support of physicians in the surrounding territory, it was given the official title of "Fracture Service," and all fracture patients were admitted directly to this department.

Except for automobile accidents, which at present account for 20 per cent of our cases, there is no one factor largely responsible for the manner in which fractures are sustained. They are simply the result of the manifold usual accidents of civil life: falls down stairs or on the street, farm accidents, playground injuries, and so on; but we admit about 200 fracture patients a year.

Before the establishment of the service, most of the elderly patients who had sustained a fracture of the hip were kept at home, as hospitalization then offered little improvement over the treatment given by the family doctor. When these patients were referred to the fracture clinic, our first method of treatment that offered any reasonable hope of union and function was the Whitman spica cast. Satisfactory results were obtained in about 40 per cent, which was disappointing when one considers the length of time the cast is worn and the nursing care employed. The announcement of a simplified technic for the use of the Smith-Petersen nail was received by us with enthusiasm. It is now used almost as a routine. When accurately placed, with the fragments impacted, it has proved to be the most satisfactory treatment we have used. While it is too early accurately to state the percentage of good results, it will far exceed our previous figures. Taking these hip fracture patients out of bed and putting them on crutches in a comparatively short time is a life-saving procedure for a group who find immobilization in a cast almost unbearable. For the same reasons, some type of well leg splint is used in the intertrochanteric fracture. It provides sufficient traction, and the patients enjoy the freedom of a wheel chair much earlier than in other methods we have employed.

In the treatment of fracture of the shaft of the femur we have watched the evolution of traction from Bucks extension to bone calipers, from Kirschner wire to Steinman pin, and in turn have used all of them. At present, when feasible, we are using skeletal fixation with steel pins combined with a plaster cast. Patients treated in this manner are apparently quite comfortable, there is little likelihood of displacement, they require a minimum of nursing care as compared with the suspension and traction method, and their period of hospitalization is materially shortened. That is an important item in an institution of limited bed capacity.

While there has been considerable criticism of the promiscuous use of Steinman pin fixation by untrained persons, this technic has given us excellent results in cases of severe comminution and spiral oblique fractures of both bones of the lower leg. The method is not used when fractures can be reduced and held in position in a cast; but when we must choose between a probable gross deformity and the insertion of pins, our choice is the latter.

Seventy-five per cent of the fractures of the humerus have required some type of traction, either ambulatory or with suspension. All our cases with fracture-dislocation of the head of the humerus required open reduction, and in most instances resection of the head.

In one group we have a definite routine. I am referring to fractures of the elbow in children. These are all reduced under general anesthesia. After manipulation and reduction, we make anteroposterior and lateral x-ray films before any splint is applied. When the film shows satisfactory reduction, a posterior plaster splint is applied leaving the inner aspect of the elbow exposed. The patient is then required to stay in the hospital at least twenty-four hours for observation.

Fractures of the shaft of both bones of the forearm in adults have been difficult to handle. Various types of traction splints have been tried with indifferent results. Open reduction, when resorted to, has not always been satisfactory. Our best results have been obtained through the use of a half pin in the radius and a pin through the ulna near the olecranon. As a rule, good reduction can thus be secured, and by incorporating the pins in a cast, held until union is complete.

It is only natural that I should experience some embarrassment in presenting this paper before the Section on Orthopedic Surgery. I am not an orthopedist, and before the establishment of our clinic I had no training in fracture treatment. It should therefore be remembered that when I elaborate on the methods used in our hospital it is only for the purpose of showing the general scope of the work and not intended as a treatise on the proper methods of treating fractures.

After observing the good results secured in other clinics, we adopted some of the mechanical devices that utilize pins and wires for skeletal fixation. While their use does entail some hazard, proper selection of cases and a scrupulously careful technic will eliminate most of the dangers. We do not believe, however, that machine shop precision and modern gadgets can replace careful individual attention to reduction, immobilization, frequent observation and follow-up service. To conduct such a service in a small place means hard work and long hours, but there is no other branch of medicine or surgery in which the drudgery of detail is better invested than in the treatment of fractures.

Most of our patients are received in a comparatively short time after injury and we are able to do early reductions. On admission, the patient, unless a condition of shock makes it unwise, is placed on the fracture table, roentgenograms are made, and a plan of treatment is decided on.

All patients are given a physical examination and a routine Wassermann test, and the facilities of the hospital are available as for any other patient. The fracture chart, as approved by the American College of Surgeons, is used as a routine. Serial x-ray studies

are also made when necessary. After reduction, all fractures are roentgenographed in two positions or stereoscopically.

Considerable time will be saved if the fracture chief can interpret his x-ray films and has a knowledge of the proper positioning of patients. Our fracture room has its own x-ray unit, a shock proof bedside machine which is used for fluoroscopic control of reductions, for taking films of most fractures of the extremities and for general bedside work in the wards. We are in most instances independent of the regular x-ray laboratory and thus avoid unnecessary moving of the patients.

The responsibility for improving the treatment of fractures in the small hospitals of the country rests more heavily on the orthopedic surgeons of America than on any other group. More can be accomplished by the individual guidance and assistance of orthopedic surgeons than by fracture committees and hospital surveys, although I do not minimize the importance of these organizations when and if they function. But orthopedic surgeons are recognized as authorities on this subject and their opinions are respected by the rural hospital staff and the physicians who refer patients to them. Not only will their advice be valuable to any clinic but their endorsement will ensure for it the recognition necessary for successful operation. In the small hospitals which have met the minimum requirements of the American College of Surgeons, fracture treatment has only recently been given serious consideration. The rules of such hospitals require that most surgery be performed only by those who have been properly trained, yet there is nothing to prevent any one from treating severe fractures. At present the fracture committee is attempting to develop suggestions and regulations for fracture treatment and give this work the recognition it deserves.

One of the most important items in the building up of a fracture service is the cooperation of the hospital staff in referring patients to the clinic. In our hospital we have been fortunate in that most of our colleagues demonstrated a high type of cooperative spirit and willingly relinquished their patients to the fracture department. In this connection the orthopedic consultant can play an important rôle; he can freely discuss this matter of referring patients and request the support of the staff for the new department, all of which would be difficult and possibly embarrassing for the fracture chief to do for himself.

We have made no appreciable progress in improving the transportation of fracture patients. Ambulances equipped with Thomas splints are not always available. As a rule patients are placed in the first car to reach the scene of the accident and rushed to the hospital. Frequently they are received in a state of shock as a result of the rough handling and the ride.

The best examples of emergency splinting seen by us were contributed by Boy Scouts and telephone crews, who used whatever was available for splinting. Patients given first aid by them arrived at the hospital in good condition. Within another generation the full benefits of the first aid instruction given to the youth of today should be manifest and more intelligent roadside care will be rendered the injured.

SUMMARY

1. As two thirds of all major automobile accidents occur in rural districts, it is necessary that the small hospital treat an increasing number of fracture patients. Present methods are unsatisfactory in many places.

2. Better care of these patients can be provided by a definite fracture service or clinic.

3. The necessary equipment need not be elaborate or expensive and is well within the financial limits of most small institutions.

4. An orthopedic consultant can help materially in building up such clinics because of his acknowledged position of leadership in fracture work.

CONCLUSION

I suggest that orthopedic surgeons use their influence, offer encouragement to the small hospitals and aid them in establishing a fracture service wherever interest is shown.

The successful operation of our fracture clinic for the past fifteen years under the supervision of an orthopedic consultant, but directed by the local chief of the service, proves the practicability of the plan, and it seems probable that the same general scheme must be applicable to many other small hospitals throughout the country.

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ABSTRACT OF DISCUSSION

DR. GEORGE E. BENNETT, Baltimore: This represents an ideal set up, which should furnish an example for all orthopedic surgeons. I have had the opportunity of hearing Dr. Johnson discuss the development of this fracture clinic with Dr. Hammond. It shows what can be done with a very unusual general practitioner who is properly guided and instructed and who has working at his side an enthusiastic orthopedic surgeon who is willing to give the time and the labor to see that he is properly instructed. The development of key men of Dr. Hammond's type in small hospitals throughout the United States is one of the matters in which this organization and other orthopedic organizations must become interested. I know of no single unit in a small rural hospital where there has been such a change in the end results of fractures as there has been in this small hospital in Easton, Md. Prior to the development of this unit the hospitals in Baltimore were constantly receiving very badly handled fracture cases from the entire eastern shore of Maryland and now we seldom see one. Dr. Hammond is to be congratulated and encouraged, and I hope that every one will be able to make as good a choice in a country practitioner as Dr. Johnson in his selection of Dr. Hammond as his co-worker.

DR. VOIGT MOONEY, Pittsburgh: Dr. Hammond's attempt is not always true in the rural hospitals. It is difficult to take up all the phases of Dr. Hammond's paper, so I shall show a few lantern slides which will graphically express some of my views on the handling of fractures in rural hospitals. I may state that I am opposed to the open treatment of fractures, especially in children.

Tuberculosis in Children.—At one time it was thought that the first infection type of tuberculosis is established in a high percentage of children before the period of adolescence. This probably was true in many places and apparently is still true in a few densely populated centers, such as Philadelphia. However, throughout the greater part of the United States and in some other parts of the world the campaign against tuberculosis in man and animals has so greatly reduced or controlled the number of cases of communicable tuberculosis in both man and animals that large numbers of children now grow to adult life without having had the first infection type of tuberculosis. Indeed, in a few places the situation has been so completely reversed that, although formerly from 90 to 95 per cent of the young adults had been infected, now only from 5 to 10 per cent react positively to the tuberculin test.—Myers, J. A.; Diehl, H. S.; Boynton, Ruth E., and Trach, Benedict: Development of Tuberculosis in Adult Life, *Arch. Int. Med.* **59**:1 (Jan.) 1937.

BENIGN LYMPHOCYTIC CHORIOMENINGITIS

LABORATORY STUDIES WITH THE VIRUS AND THEIR POSSIBLE BEARING ON THE INFECTION IN MAN

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AND
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The virus of benign lymphocytic choriomeningitis was first isolated and described by workers at the National Institute of Health in 1934.[1] Traub[2] at Princeton in 1935 and Lépine and Sautter[3] at Paris in 1936 recovered similar strains of virus from white mice, and Rivers and Scott[4] at New York in 1935 and also Findlay, Alcock and Stern[5] at London in 1936 isolated strains from human beings with nervous manifestations.

These various strains affected animals in a similar manner and have been shown to be immunologically similar to the original strain isolated by Armstrong.[1] The virus is pathogenic for monkeys, guinea-pigs, mice and white rats and is capable of affecting many tissues and organs. For instance, Armstrong, Wooley and Onstott[6] demonstrated an abundance of the virus in the brain, lungs, kidneys, heart muscle, voluntary muscles, marrow, salivary glands, adrenals, spleen, liver, testicles and blood of infected monkeys. Lillie,[7] moreover, demonstrated that the presence of the virus in the various organs was accompanied by micropathologic changes.

The symptoms in experimentally inoculated monkeys differ in severity depending on the dose, the strain of virus and the route of inoculation. When inoculated directly into the central nervous system, the virus produces well marked symptoms and often death in monkeys and is usually fatal to mice and guinea-pigs. When it is introduced otherwise than directly into the central nervous system, it is extremely rare according to our experience for symptoms suggesting involvement of the central nervous system to ensue, and this is true even though the inoculation follows local irritation produced by the injection of foreign material into the brain. Monkeys so inoculated may be febrile for a few days, not eat well and appear somewhat ill. However, an afebrile, asymptomatic type of infection with virus demonstrable in the circulating blood has been noted.[8] Monkeys and mice have been shown also to become immune to intracerebral inoculation after subcutaneous injection of the virus even in the absence of symptoms detectable by usual observations. Moreover, the serum of immune monkeys, as demonstrated by Armstrong and Wooley[9] and others,[10] when mixed with the virus in proper proportion is capable of neutralizing the latter, as is shown when the mixture is injected intracerebrally into normal animals.

NEUTRALIZING ANTIBODIES IN THE SERUM OF MONKEYS

We have demonstrated potent antibodies[11] in the serums of sixteen of seventeen monkeys which had been well for various intervals after recovering from an experimental infection with the virus of choriomeningitis, while of eight noninoculated monkeys, sixteen that had received the virus of poliomyelitis and eleven that had been inoculated with the virus of encephalitis (St. Louis type) all had negative reactions except two. The two exceptions had both been for some time either in direct or indirect contact with infected animals. Moreover, one spontaneously infected monkey was actually observed;[9] hence, the serum virus protection test appears to afford a means of detecting the presence of specific antibodies in the serum of monkeys.

CHORIOMENINGITIS VIRUS AS A CAUSE OF DISEASE IN MAN

Two strains of a previously undescribed virus were isolated at the National Institute of Health during studies of autopsy material from two cases. One subject had died of encephalitis, St. Louis type, and the other apparently of a staphylococcic invasion of the brain. We could not, however, be certain that the viruses had not been picked up from our transfer animals (monkeys). The similarity of the symptoms and the changes in the spinal fluid in monkeys to those recorded in cases of "aseptic meningitis" in man was, however, pointed out by Armstrong,[1] who later, with Wooley, demonstrated the presence of specific neutralizing antibodies for the virus in the serum of persons who had recovered.

Armstrong and Dickens[10] noted the absence of such antibodies from the serum taken early in the course of an attack of "aseptic meningitis" and their development during convalescence. Rivers and Scott[4] and Findlay, Alcock and Stern,[5] moreover, have isolated strains of the virus from human beings with this clinical entity, so that the etiologic rôle of the virus in certain clinical cases of "aseptic meningitis" is established.

PROTECTIVE ANTIBODIES IN HUMAN SERUM

Workers at the National Institute of Health have completed the testing of 1,248 human serums for the presence of antibodies capable of neutralizing the virus of lymphocytic choriomeningitis; 138, or 11 per cent, gave definitely positive results. Fifty-eight of the 1,248 serums were from persons whose condition was clinically diagnosed as "aseptic meningitis"; in nineteen, or 32 per cent, neutralizing antibodies against the virus isolated at the National Institute of Health were demonstrated.

In some instances the serums were collected too early in the attack for one to have expected the presence of specific antibodies, and it was not possible to secure later samples. There were, however, numerous cases in which the condition was considered to be clinically "aseptic meningitis" in which the results of the protection tests were negative with serum collected well after convalescence and even with repeated samples of serum. Such results might be explained by immunologic differences in strains such as have been observed in the case of certain other ailments due to viruses. However, the

Read before the Section on Nervous and Mental Diseases at the Eighty-Eighth Annual Session of the American Medical Association at Atlantic City, N. J., June 10, 1937.

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7. Lillie, R. D.: Pub. Health Rep. **51:** 303-310 (March 20) 1936.
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strains of virus already isolated from widely separated regions have all been immunologically similar. Moreover, the fact that we failed in several instances to isolate the virus from material collected at a time when its presence should have been expected is against this interpretation. We have been led, therefore, to feel that the clinical entity "aseptic meningitis" is made up of more than one etiologic entity. The serum virus protection test indicates that approximately one third at least of the fifty-eight cases of "aseptic meningitis" investigated were probably caused by the virus under discussion, for which cases we have therefore suggested the specific designation of benign lymphocytic choriomeningitis. The cases in which protective antibodies for the choriomeningitis virus were not demonstrated possibly were cases of such diseases as tuberculous meningitis, poliomyelitis, encephalitis of the lethargic, St. Louis or postinfection type, or of other ailments of the central nervous system, of unknown cause.

It is to be noted, however, that protective antibodies in the serum were much more frequently observed (11 per cent) than was a history of aseptic meningitis. Many persons with antibodies were carefully questioned by Dr. Wooley and denied a history of any disturbance of the central nervous system whatever. Obviously, then, either the protection test as carried out is not specific for choriomeningitis or the antibodies are the result of a nonrecognized type of infection with the virus.

Careful interrogation of many persons showing antibodies and having no history of any ailment of the central nervous system was made by Dr. Wooley and revealed infections of the upper part of the respiratory tract designated as "grip," "influenza" or "colds" as the only diseases common to the groups.[12] It may therefore be of some significance that of 106 serums from persons with rather recent infections of the upper part of the respiratory tract, thirty, or 28.3 per cent, showed definite protection, an incidence second only to that shown in cases of aseptic meningitis (32 per cent). In this connection it is of interest to note that several proved cases of choriomeningitis began with symptoms of grip or head cold, to be followed a few days later by meningeal symptoms. In view of the fact that the choriomeningitis virus attacks many tissues in animals, these premonitory symptoms in man suggest a systemic type of infection which, as suggested by the history and protection test results, may only exceptionally be followed by involvement of the central nervous system.[13]

AGE INCIDENCE

As already noted, the serum of 11 per cent of the 1,248 subjects gave definitely positive results in the serum virus protection test; 486 of these subjects were known to be over 16, and of these ninety, or 18.7 per cent, showed positive protection while of 345 normal persons 16 or under who lived in orphanages or training schools in Maryland, Virginia or South Carolina and fifty-one ill children from various localities (a total of 396) not one showed strong protection and but five, i. e., 1.2 per cent, a moderate degree of protection. It might also be pointed out that the small number of attacks proved to be due to the choriomeningitis virus all occurred in persons over 20.

This relative infrequency of serologic evidence of infection by the virus of choriomeningitis in children as compared to that in adults is unexplained, but several possibilities suggest themselves:

1. The adult and child groups in our series may not be representative samples of the general population.
2. Possibly the virus was epidemic about 1921, after which it tended to disappear until recently. This explanation could hold only in case the neutralizing antibodies tend to persist for years after the attack. Evidence on this point is meager, but Armstrong and Dickens[10] reported the persistence of antibodies for three years and eleven months after the supposed attack. Serum collected from the same patient after four years and seven months showed no detectable diminution of antibody content.
3. It is conceivable that immunity in children, like that in mice, is not accompanied by the development of humoral antibodies.
4. Children conceivably may be resistant to infection, lack exposure or both.

METHOD OF SPREAD OF THE VIRUS

We have found it possible to transmit occasional infection in monkeys by intra-urethral and intravaginal instillations.[8] These observations, together with the fact that we have demonstrated the virus in the urine of infected animals, where it tends to persist, as well as in the testicles and seminal vesicle fluid of infected animals, and the higher incidence of antibodies in man following puberty, at least suggest the possibility that a venereal transmission may constitute one route of infection in this disease. In this connection, it is of interest to note that 3.9 per cent and 1.3 per cent, respectively, of the serums of fifty-one adults in the St. Elizabeths Hospital for the insane and seventy-one sufferers from the St. Louis type of encephalitis in various localities, many of whom were adults, gave positive results with the serum virus protection test, as compared to an incidence of 17 per cent and 19.7 per cent, respectively, of positive protection for serums from 275 inmates of federal penitentiaries and 314 patients at the Marine Hospital. That convicted criminals constitute a group highly exposed to venereal infection is indicated by the fact that the Wassermann reaction was positive in sixty-two, or 22.5 per cent, of the 275 serums submitted to the serum protection test. It is, moreover, known that certain of the serums with a negative Wassermann reaction had been rendered so by vigorous antisyphilitic treatment.

The evidence suggesting a venereal route of infection is, to be sure, in no sense conclusive and is mentioned merely as one possible route of infection to be kept in mind by persons who may have an opportunity to investigate cases of benign lymphocytic choriomeningitis.

The serums submitted to the protection test were largely from male patients, so that it is not possible to make any comparison of the occurrence of antibodies in the serums of the two sexes. A more detailed analysis of our results with the protection test on 1,248 serums will appear shortly in *Public Health Reports,* to which those interested may refer.

CONCLUSIONS

The virus of benign lymphocytic choriomeningitis first described in 1934 has been recovered from man and from animals in several localities of the United States, in England and in France, and the demonstration of antibodies in 11 per cent of 1,248 serums from scattered areas of the United States by the serum virus mouse protection test, which we believe to be specific, indicates that this virus may be of greater importance

12. Two of these were laboratory workers at the National Institute of Health whose attendance records could be checked and who had had no recent illnesses other than occasional headaches and "grip."
13. The histopathology of choriomeningitis in man is unknown, since there have been no deaths in proved cases.

as a cause of human infection than the occasional cases of involvement of the central nervous system would indicate.

ABSTRACT OF DISCUSSION

DR. PAUL DICKENS, Washington, D. C.: The authors report a new disease entity, benign lymphocytic choriomeningitis, and separate it from a group of diseases previously designated "aseptic or benign lymphocytic meningitis." The workers of the National Institute of Health and in particular Dr. Armstrong should be given the credit for first isolating and reporting the virus of this disease. The incidence of benign lymphocytic choriomeningitis is not as uncommon as previously supposed if the authors' figures on random sampling of blood serums showing 11 per cent or more positives is taken as a criterion of its prevalence. By analogy this would also indicate that the diagnosis is being all too frequently missed. From an immunologic standpoint there seems to be no doubt that the virus isolated by Armstrong is the etiologic agent in benign lymphocytic choriomeningitis. In a series of cases reported by Armstrong and Dickens, it was noted that during the first two weeks of the disease the serum virus mouse protection test was negative but early in the third week became positive. This fact is important, as the authors state that the diagnosis in certain cases has not been determined, owing to the taking of blood serum for the mouse protection test too early in the course of the disease. It is good practice, however, when one is able to do so, to take the serum early and, if it is negative, to repeat the test after the third week. Should the test then be positive it would be immunologic proof of the disease. I wish to emphasize the fact that there is an almost pure lymphocytic cellular response in the spinal fluid. It was noted that the mouse protection test was positive only in cases in which the cerebrospinal fluid contained 90 per cent or more of lymphocytes, while in the cases in which there was an increase in polymorphonuclear cells as well as in lymphocytes, even though the lymphocytes were above 50 per cent, the test was uniformly negative. I mention this in view of the varied cell count of the cerebrospinal fluid given in the literature on aseptic lymphocytic meningitis, and Dr. Armstrong's statement that numerous patients considered clinically aseptic meningitis gave negative protection tests. The suggestion of Dr. Armstrong that there may be a systemic invasion of the disease without metastases to the central nervous system is interesting. May I ask whether these missed cases may not be considered a source of spread of the disease? All my patients found by Dr. Armstrong to give positive serum-virus mouse protection tests had an initial infection of the upper respiratory tract followed later by symptoms of meningeal irritation sufficient to warrant a spinal puncture. The authors' figures of 28.3 per cent positive in 106 cases of recent infection of the upper respiratory tract is significant and warrants further study. When a new disease first appears in a community the attack rate is highest in the upper age group (the St. Louis epidemic of encephalitis), the succeeding waves attacking the younger group. This may be one reason for the low incidence of the disease in children in this country.

DR. JOSEPHINE B. NEAL, New York: I have never seen a case of benign lymphocytic choriomeningitis. I have tried to make the diagnosis but up to the present time have not been able to demonstrate the virus or the antibodies. In consequence I have quite an unprejudiced point of view. Those of us who are working with acute infections of the central nervous system feel that the further we go—I don't like to say the less we know, but rather the more we find that we would like to know. In the literature there has been a tendency to diagnose "benign lymphocytic meningitis" or "benign lymphocytic choriomengitis" without adequate laboratory confirmation. I agree with both Dr. Armstrong and Dr. Dickens that the diagnosis must be established by the demonstration of the virus or of the antibodies in the convalescent serum. After studying descriptions of these cases I have wondered whether the title "benign lymphocytic choriomeningitis" adequately describes the disease in man. In two cases reported by Findlay and his associates, for instance, there were extensive sensory disturbances and considerable paralysis, and one patient of Dr. Viets had some paralysis that was more temporary in nature. It seems to me that those symptoms indicate a parenchymal involvement which the term "meningitis" does not describe. Moreover, I do not believe that it is possible for us to pass directly from the pathology of the experimental disease in animals, in which it is, I believe, a simple meningitis, to the pathologic condition found when some patient has died during an attack of this disease and a complete histopathologic study has been done on his brain.

DR. HENRY R. VIETS, Boston: Some light is gradually accumulating on this syndrome or this disease, if we want to call it such. Thanks to Dr. Armstrong a virus has been found which causes a condition in animals very similar, if not entirely similar, to that which has been seen in man. The history of the disease is of some interest, because Wallgren in 1925 described aseptic lymphocytic meningitis in children, and his work was not accepted generally at the time in the neurologic literature. In this country, Viets and Watts saw their first patients in the fall of 1928 and published two papers in 1929 reporting five cases. Since then I have been interested in the clinical syndrome and have gradually accumulated a good many cases, all of which seem to fall into a group that justifies being classified as a separate disease. Dr. Armstrong has given us enough additional encouragement to call the syndrome a disease, and if we now can add some information from human cases, ultimately we shall get a complete picture of this type of meningitis. The only case that has been brought to pathologic examination, so far as I know, is one which Viets and Warren reported in 1937. Unfortunately the patient died before Dr. Armstrong's announcement of the virus, so the patient's blood could not be tested by the method which would be used today; therefore the case must be considered as unproved. The patient, however, showed the clinical manifestations of the disease and the cerebrospinal fluid manifestations were such that we were satisfied with a diagnosis of acute lymphocytic meningitis. Although the disease is seldom fatal, it would seem likely that if one death occurred in the last few years there will be more. The test that should be done in all cases is to check with the virus of Dr. Armstrong or Dr. Rivers before the definite diagnosis is made clinically. This work of Dr. Armstrong is most important. It is not the first time neurologists have been helped by the National Institute of Health.

DR. CHARLES ARMSTRONG, Washington, D. C.: I am glad that Dr. Dickens and Dr. Viets have mentioned the clinical picture, because at the National Institute of Health we lack clinical material and I felt that it would be presumptuous on my part to discuss the clinical picture before men who have seen so much of it. As regards the questions which Dr. Dickens raises as to the virus spreading through missed cases, I think it is a likely probability. We have in none of these cases been able to trace a contact between known cases. If it is infectious, as we feel it must be, it is possibly through these missed cases or possibly carriers of diseases. Dr. Dickens thinks the respiratory route is a probability, and we certainly couldn't deny that. However, to say that because there is a respiratory symptom it necessarily means that the infection enters by that route is fallacious. We have inoculated the virus directly into the lung tissue and the resulting picture was just about what we got when we put it subcutaneously. A few of our monkeys did, however, develop a rather persistent cough, and there was no very apparent pathologic change to explain the presence of such a cough. So far as I know such a cough has not been recorded in the human cases proved to be due to this disease. As to the age incidence indicating this is a new disease, it may possibly point in that direction. I am not wedded to the name, and it is possible that future experience with this disease in man will indicate that we should at least throw off the "benign" and possibly add "encephalitis"; but there is certainly in those human cases that have been proved to be due to this virus considerable variation in the symptomatology. Some cases have been relatively severe, others have been very mild. As to the testing of serums, if any one should encounter suspected cases we would be very pleased if you would send us the serums. All you need to do is draw the blood sterilely and send the whole blood without preservatives. We have found that a certain amount of hemolysis makes no difference with the test. We shall be very glad to test such serums.

USE OF PROSTIGMIN AS A DIAGNOSTIC TEST OF MYASTHENIA GRAVIS

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AND
HAROLD SCHEIE, M.D.
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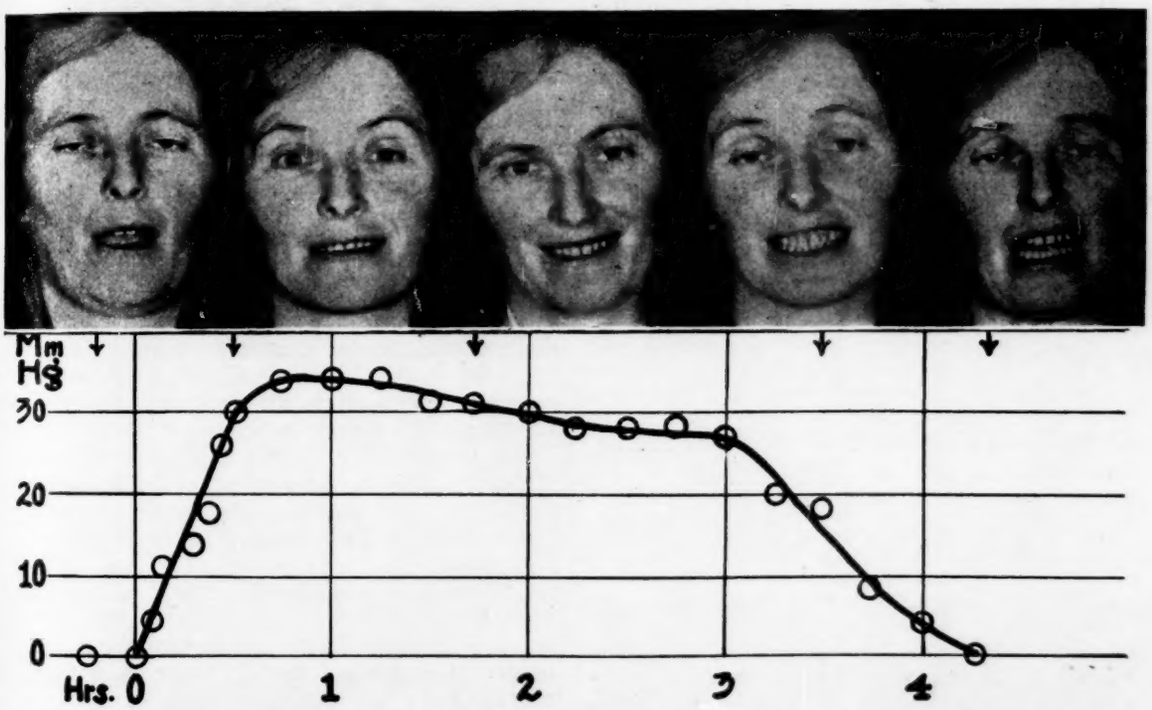
That prostigmin relieves the muscular weakness of myasthenia gravis has now been accepted quite generally by all observers who have studied the drug.[1] This relief, furthermore, has provided new insight into the mechanisms at fault in the disease. The possibility of using the response to prostigmin as a diagnostic test of myasthenia has not, however, been fully appreciated. It is true that Viets and Schwab [2] have found that the weakness due to lesions of the central and peripheral nervous system was not materially improved. However, the effect of prostigmin on the muscular diseases has not been systematically studied. We have accordingly examined the action of the drug on the weakness due to a variety of diseases of the muscular system. None of the patients obtained any striking relief from prostigmin. Therefore myasthenia gravis is the only condition examined thus far in which muscular weakness is consistently and markedly improved. For this reason it seems fair to conclude that a response to prostigmin may be used as a diagnostic test of the disease.



The effect of prostigmin on myasthenia gravis. The graph illustrates the height to which a column of mercury could be blown. At 0 hours, prostigmin 1.5 mg. and atropine sulfate 1/100 grain (0.00065 Gm.) were given hypodermically. Successive pictures were taken at the points marked by arrows. In each, the patient was attempting to smile.

MATERIAL AND METHODS

The cases studied include four cases of myasthenia gravis, in one of which hyperthyroidism had developed; five cases of progressive muscular dystrophy; two cases of myotonic dystrophy; one case of family periodic paralysis; two cases of amyotonia congenita; five normal adults, and three normal children. The patients were studied in the Neurological, Medical and Pediatric services of the University Hospital; diagnoses were made after careful study.

In estimating changes in muscular contraction we observed facial movements and, wherever possible, we employed such objective tests as weight lifting, dynamometer tests and the height to which a mercury column could be blown. In some cases myographic records were made.

As a test dose from 1.5 to 2 mg. of prostigmin hypodermically was used, combined with atropine sulfate 1/100 grain (0.00065 Gm.). It should be emphasized that a large dose is required to obtain the desired response. Children tolerate about half the adult dose.[3]

EFFECTS OF PROSTIGMIN IN CASES OF MUSCULAR DISEASE AND MYASTHENIA AND IN NORMAL PERSONS

Prostigmin in doses ordinarily employed in the treatment of myasthenia sets up marked fibrillary tremors in the muscles of normal persons and in all these cases of muscular disease except myasthenia. While best seen in the eyelids and tongue, the fibrillations occurred irregularly throughout the body and did not selectively affect the diseased muscle. The twitching probably results from repetitive contraction of small groups of fibers in response to tonic impulses, since Brown, Dale and Feldberg [4] have observed that muscle treated with physostigmine gives a multiple response to a single stimulus applied to the motor nerve. In the muscular dystrophies the twitching was considerably more marked

Dr. Gammon is Godey and Seeger Fellow.
From the Medical Clinic of the Hospital and the Institute of Neurology, the University of Pennsylvania School of Medicine. Supported by the Kirby-McCarthy Fund.

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than in normal persons, indicating probably an increased sensitivity to the drug. In myasthenia gravis, in contrast to these cases, fibrillations almost never occurred; only rarely were they observed in the lids. The absence of a normal reaction suggests that the myasthenic process is generalized and widespread.

While the lack of fibrillary twitching distinguished myasthenia from the other cases examined, a much more striking difference was evident. For the weakness of myasthenia was consistently and spectacularly relieved, as shown in the illustration, but that of the other conditions was either not materially affected or, in some cases, was slightly increased. Thus only one of the seven patients with dystrophy obtained an increase in strength and this was so slight as to require careful measurement to demonstrate the change. The patient with periodic family paralysis was made somewhat weaker.

Thus, of the various muscular diseases that we examined, myasthenia gravis alone responded to prostigmin with significant increase in the strength of muscular contractions. Since, then, others have shown that weakness due to lesions in the central and peripheral nervous systems is also not materially improved by prostigmin, a marked improvement in muscular weakness by prostigmin and the absence of fibrillary tremors is a diagnostic test of myasthenia. In other words, prostigmin appears specific for myasthenic weakness, since it relieves no other condition so far examined. It is possible that prostigmin may find its widest usefulness as a test to differentiate myasthenia from other causes of muscular weakness.

XANTHOMA TUBEROSUM ASSOCIATED WITH TRAUMA AND MILD DIABETES MELLITUS

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In reporting this case illustrating the striking lesions of a rare skin disease—xanthoma tuberosum—in a healthy young man, we wish to emphasize that the etiology of the various types of xanthomatosis is as yet to be determined. The knowledge of the metabolism of fats, the chemistry of cholesterol and the blood lipids with which xanthoma lesions are associated is confused and imperfect. In this report we shall attempt to discuss only briefly the various theories regarding the causes of xanthoma.

The name xanthoma was first introduced to describe a yellow fibrous or soft tumor which assumed several shapes and sizes found on the skin over various areas of the body. These tumors, which were first thought to be confined to the skin only, are now known to be present in bones, tendons and organs of the body. The orange and yellow plaques, xanthelasma, frequently noted about the eyelids, and the small pea-shaped tuberosities found on the knees and elbows are benign and more or less common. All these yellowish tubercles, papules, plaques and other shaped growths contain cholesterol and may be associated with diabetes mellitus and hypercholesterolemia.

These accumulations, which we shall call in this case tubercles, may be due to many causes, such as accidents, long continued mild trauma, inflammation, or deficiency diseases, while some are neoplastic. Not all of them are yellow, some being reddish brown, some pink and some purplish. All contain the typical foam cell, which is a special type, consisting of a large body of protoplasm with distinct borders and foamy structure. This meshy appearance is due to the removal of numerous lipoid droplets in the cytoplasm, which are dissolved during the staining process. These droplets are composed largely of cholesterol and its esters.

Early observers, among them McDonagh[1] and Aschoff,[2] were of the opinion that xanthomatous lesions were benign neoplasms arising from the endothelial system. Rowland[3] was of the opinion that all these tumors, or granulomas containing xanthoma cells, were manifestations of one disease and were due to the disturbance of lipoid metabolism.

In 1929 a series of investigations was carried out by Wile, Eckstein and Curtis.[4] They studied the lipid chemistry of the blood and the various types of xanthoma and showed definitely that they do occur in the presence of a low or normal cholesterol, as well as in the presence of a high cholesterol. Wile further pointed out that one reason for the belief that xanthoma lesions were due to a hypercholesterolemia in the past was an error in lipid chemistry. This error led to the belief that blood overloaded with fat contained a larger amount of cholesterol than it did.

This was due to the difficulty in differentiating that lipid from the other lipids of the blood. Wile and his collaborators further showed that in the absence of diabetes mellitus an increase in alimentary fat had no influence in the course of the cutaneous lesions, but an extreme reduction in the total diet brought about a remission of the nodules.

On the contrary, in the diabetic and the potential diabetic patient the cutaneous nodules disappeared when there was a fall in the value of the circulating lipids. Ingested fat did not seem to affect the involution of the lesions.

The work of Schaaf and Werner[5] in 1930, of Bloch[6] in 1931 and of Schaaf[7] in 1931 has contributed much knowledge regarding the etiology of xanthoma. These observers concluded that in patients with xanthoma there exists a greater or less disturbance in the mechanism which regulated the stable emulsion of fat and lipids in the blood stream. When this balance was upset, a partial precipitation of one or more fractions occurred in order that the balance might be reestablished; the precipitated portions thus set free were stored in the tissue spaces. This regulating mechanism could not be discovered, but these investigators suggested that it might be located in the liver. It should be observed here that in the most severe liver diseases with jaundice there is very seldom found any xanthomatous diseases or lesions.

From the Diabetic Clinic, Roosevelt Hospital.

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These observers made another important observation—that, in the study of patients with xanthomatous lesions, blood cholesterol or blood fat determinations alone were of no value. Fractional analyses of the various lipid constituents must be made both in fasting subjects and after the introduction of an excess load of fat and cholesterol by the test meal.

Schaaf and Werner further concluded that it seemed plausible that with a disturbance in the lipid fractions

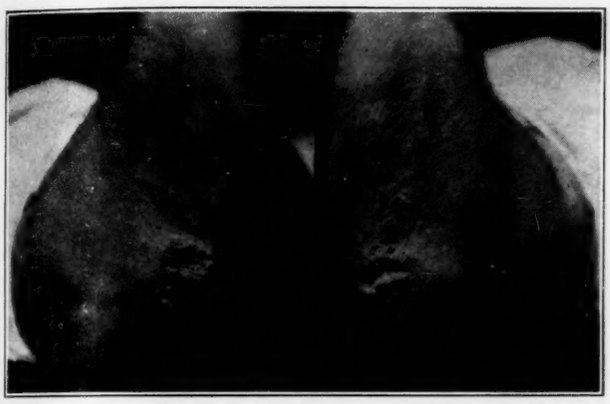

Fig. 1.—Xanthoma tuberosum of the elbows and forearms. Note flat, scaly lesion.

a very slight instability might exist, which might be intensified by trauma, or alteration in the tissues, thereby completing the disintegration of the emulsion and allowing fats, cholesterol and phosphatides to deposit in the skin.

Melicow,[8] in a review of the subject of the various types of xanthoma, proposed the name xanthic lesions to cover all these different groups. This classification is very comprehensive and will be of great value for further detailed study. He mentions the generalized forms and identifies those clinical forms which come under the general head of constitutional types: (1) Niemann-Pick's disease, (2) Gaucher's disease, (3) Hand-Schüller-Christian's disease, (4) possibly, Tay-Sachs amaurotic family idiocy. These are grave constitutional disturbances, though rare in occurrence. The theory is suggested that xanthic granuloma diabeticorum, xanthic granuloma palpebrarum and multiplex xanthic dermatosis might be similar constitutional disturbances, though milder in degree. This observer also mentions the hereditary tendencies, obesity and liver disease as being frequently associated with the xanthomatoses.

As various types of xanthomatous lesions are reported from time to time, the pathology becomes wider and wider in scope, apparently showing a close relationship between a simple skin disease which is harmless and a fatal constitutional disease. As an example of this, one finds within the same group Gaucher's splenomegaly and the simple yellow papule seen about the eyelids, xanthelasma.

REPORT OF CASE

History.—W. L., a man, aged 27, Italian, a chef, examined at the Roosevelt Hospital in January 1936, had been admitted to the dermatologic clinic one month previously for examination because of the yellowish nodules on the skin of buttocks, elbows and knees. These nodules first began to appear about one and one-half years previously. They were first noted about six months after he began work as a tile setter, appearing first on the elbows and knees, where pressure was the greatest during his occupation, and later on the buttocks. When they were first noted they were pea sized and not painful to the touch, but as time passed they grew larger and caused so much discomfort, especially about the knees, that he changed his work to that of a cook. He had continued this occupation for the past year and a half. Since this change the skin lesions had not grown larger or increased in number; in fact some of the smaller ones had disappeared spontaneously and on their sites brownish pigmented spots persisted.

Physical Examination.—The patient was exceptionally well developed and obese; the height was 68½ inches (174 cm.) and the weight 197 pounds (90 Kg.). He had gained about 40 pounds (18 Kg.) in the past eighteen months. There was no history of diabetes mellitus in the family or of similar skin lesions. His only subjective complaints were that he could not concentrate on his work and would fall asleep very easily.

The past history was negative except for jaundice of three or four weeks' duration at the age of 10 years and quinsy sore throat two years before admission. The eyes were normal, and the ophthalmologic examination was negative for any fatty deposits. The ears were normal and the teeth in good condition. Large reddish tonsils were noted. A careful examination of the blood pressure, heart, lungs, abdomen and genito-urinary organs did not reveal any abnormalities. The extremities were normal and the neurologic examination did not reveal any abnormal manifestations.

The patient stated that when he first noted the nodules on the knees they were the size of a small pea; they gradually increased in size and number. Some of them fused to form larger ones, and some of those on the elbows fused to form flat ones. The tuberous lesions were typical of xanthoma tuberosum in color, contour and location. These nodules and papules were raised, round and shiny; some were soft and others hard. Several of those on the elbows (fig. 1) were pea sized; others were 1.5 cm. in diameter, yellowish, and somewhat scaly and hard. These were not painful on pressure but as they grew they fused and flattened. The lesions on the buttocks were more numerous than elsewhere, of a yellowish hue, and raised, and varied in size from very small peas to 1 cm. in diameter.

The lesions on the knees (fig. 2) were most striking in appearance, especially the right knee (fig. 3). The smallest pea-sized ones were yellow. Other larger ones were pink and

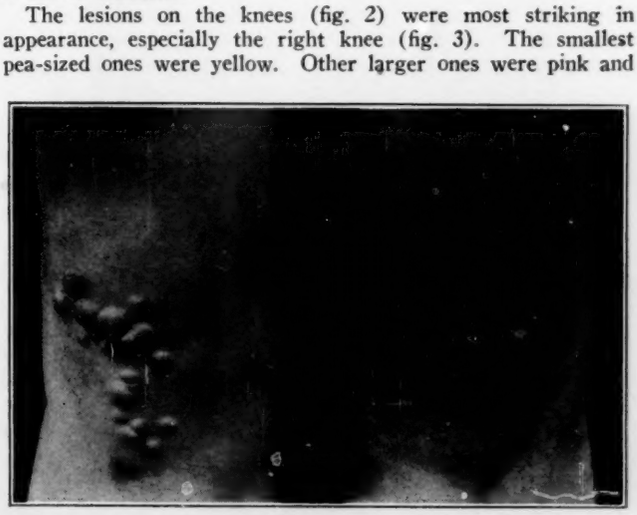

Fig. 2.—Xanthoma tuberosum of the knees.

a deeper yellow, while some of the largest ones were bluish and others purplish. The smaller ones were soft and depressible, but the larger ones were harder and fixed. Their sizes varied from 0.5 cm. in diameter for the discrete ones to 1.5 cm. for the largest ones, which had been formed by fusion and were somewhat flat; all were glistening in appearance. They were not painful to the touch, but the patient stated that when he knelt for any length of time these areas became red and caused discomfort. Three brownish areas are noted in the illustrations, which are the sites of those which have disappeared. At no other part of the body could any similar lesions be found. There are no evidences about the eyes, mucous membranes or tendon sheaths.

8. Melicow, M. M.: Xanthic Lesions, J. A. M. A. **105**: 768-774 (Sept. 7) 1935.

Roentgenograms of the skull, lungs and heart revealed nothing of interest, and the changes were within normal limits.

Laboratory Examination.—A complete blood count and urinary examination revealed normal conditions. The blood chemistry showed blood cholesterol 170 mg. and urea nitrogen 13.7 mg. per hundred cubic centimeters. The blood sugar after ten hours' fasting was 105 mg. The blood Wassermann and Kahn reactions were negative. A dextrose tolerance test was performed with the results as follows: fasting 0.099 mg., after the first hour 0.218 mg., after the second hour 0.164 mg., after the third hour 0.078 mg. per hundred cubic centimeters of blood. A second blood cholesterol was found to be 0.199 mg. per hundred cubic centimeters of blood. The basal metabolic rate was found to be minus 10. The urinary examinations were negative for dextrose at all times.

Pathologic Examination.—A nodule was removed from the right knee for biopsy, the report of which was as follows: The epidermis was elevated and flattened in one zone and the rete pegs were much shortened. In the corium of the adjacent region there were prominent arterioles and capillaries; yellow pigment was noted in the large monocytes in such foci. The diagnosis was pericapillary histiocytosis of the xanthoma type. A second nodule was removed for further examination, the report of which was as follows: The hematoxylin and eosin stained specimen showed some fibrous tissue with foamy cells. The more definite changes were seen in the sections stained for fat. Here were numerous elongated spindle cells arranged in indefinite bundles, which crisscrossed. These cells contained red globules of a translucent nature (lipoid). The diagnosis was fibroxanthoma.

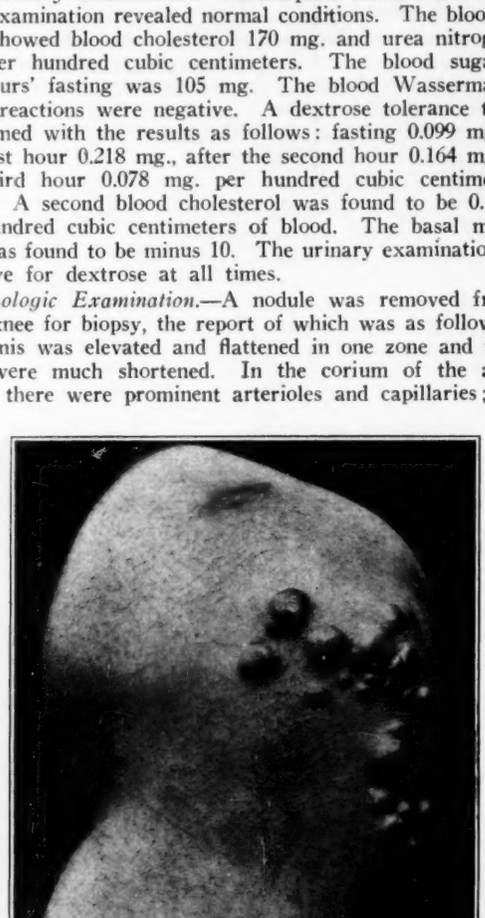

Fig. 3.—Xanthoma tuberosum of the right knee, illustrating large, elevated tubules.

Course.—The patient was placed on a diet of 100 Gm. of carbohydrate, 50 Gm. of protein and 50 Gm. of fat for the following six weeks and he lost 10 pounds (4.5 Kg.). There was no apparent change in the lesions during this time. The diet was difficult to control because the patient could not be under proper observation. On his return to the clinic six weeks later we found that he had gained the weight he had previously lost. During this time, however, three of the smaller nodules had disappeared entirely from the knees, leaving brownish spots on the sites. The patient was then strongly advised to adhere to his diet and to have 10 units of insulin administered before each meal. On observation one month later, now four months after he was first examined, there was no further apparent change in the appearance of the lesions.

Thus our efforts to influence the lesions in this case of xanthoma tuberosum in mild diabetes were without effect.

COMMENT

Several cases of xanthoma diabeticorum have been treated successfully with a low carbohydrate diet, insulin or both. Goldstein and Harris [9] reported an excellent result with insulin; Templeton and Chouret,[10] Azer,[11] and Moreland and Dardinski [12] reported that a low diet caused the lesions to disappear. Diet combined with insulin was found of value by Engman and Weiss.[13] Gordon and Feldman,[14] and Stetson and Diasio [15] found diet only of temporary value in treating xanthoma multiplex. Ralli [16] likewise reported that diet was of little value in a case of acromegaly associated with diabetes mellitus and xanthoma diabeticorum.

In studying the metabolism of fats and carbohydrates, and the chemistry of cholesterol and the blood lipids in relation to xanthomatous lesions, the impression is definitely obtained that knowledge is very imperfect. There are so many confusing theories, paradoxes and diverse manifestations that we consider it important to state briefly some of these observations found in the literature:

1. Hypercholesterolemia alone cannot account for the formation of xanthoma lesions, because about 30 per cent of the cases of xanthoma showed no increase in blood cholesterol.

2. Xanthoma has been frequently found in the absence of lipemia.

3. Lipemia is of frequent occurrence in tuberculosis, nephrosis and infectious diseases such as scarlet fever, typhoid and pneumonia, yet xanthoma is a rare occurrence in these diseases.

4. Xanthoma lesions do occur associated with diabetes mellitus and the prediabetic state, but they are so rare that only a few hundred cases have been reported, while the number of diabetic patients run into the thousands.

5. If xanthomatous lesions are associated largely with an increased blood cholesterol, as was formerly thought, why are they so infrequently found in liver disease, in which the blood lipids are as a rule markedly increased? Wile remarked long ago that xanthomatosis was almost never encountered with jaundice.

6. Cholesterol is widely distributed and present in all types of food that are eaten daily, but it does not seem to be associated with any specific skin lesion.

7. Jadassohn, in discussing Wile's [4] paper, reported a case of xanthoma in which the blood lipids were high, but he was unable to produce new lesions by traumatizing the skin. Wile [4] in a further discussion of Jadassohn's remarks mentioned a case in which the lesions of xanthoma had developed from such a trauma as a mosquito bite.

8. The observations of Wile and Duemling,[17] Weingrow,[18] and Lane and Goodman [19] all emphasize and

9. Goldstein, Eli, and Harris, John: Xanthoma Diabeticorum: An Unusual Process of Involution, Am. J. M. Sc. **73**: 195 (Feb.) 1927.
10. Templeton, H. J., and Chouret, E. E.: Xanthoma Diabeticorum, Arch. Dermat. & Syph. **24**: 604 (Oct.) 1931.
11. Azer, M.: Xanthoma Diabeticorum, Brit. M. J. **1**: 665 (April 12) 1924.
12. Moreland, R. B., and Dardinski, V. J.: Xanthoma Diabeticorum, J. A. M. A. **100**: 491-494 (Feb. 18) 1933.
13. Engman, M. F., and Weiss, R. S.: Xanthoma Diabeticorum Treated with Insulin, Arch. Dermat. & Syph. **8**: 625 (Nov.) 1923.
14. Gordon, W. H., and Feldman, M. S.: Xanthoma Diabeticorum, J. Michigan M. Soc. **23**: 231 (June) 1924.
15. Stetson, D. D., and Diasio, F. A.: Xanthoma Multiplex, Arch. Dermat. & Syph. **18**: 348 (Sept.) 1928.
16. Ralli, Elaine P.: Acromegaly with Diabetes Mellitus and Xanthoma Diabeticorum, Arch. Int. Med. **47**: 329-335 (Feb.) 1931.
17. Wile, U. J., and Duemling, W. W.: Familial Xanthoma, Arch. Dermat. & Syph. **21**: 642-647 (April) 1930.
18. Weingrow, S. M.: Xanthoma Tuberosum, Arch. Dermat. & Syph. **25**: 1021-1027 (June) 1932.
19. Lane, C. G., and Goodman, Joseph, Jr.: Xanthoma Tuberosum, Arch. Dermat. & Syph. **32**: 377-384 (Sept.) 1935.

illustrate the hereditary character of xanthoma. The latter's cases illustrate the importance of trauma in producing xanthoma.[9] Higman, in discussing the paper of Michael and Nicholas, referred to the work of Lebedev published twenty years before on experimental xanthoma. This had been produced in rabbits after they had been fed lipoids on the site where setons had been placed.[10] The upset balance theory of Schaaf and Werner [5] and Bloch [6] seems to be accepted by many observers.

9. Michael,[20] in discussing his paper, did not think that this theory of the imbalance of lipid constituents was altogether so simple. These observers found a case of this imbalance in nephrosis and one in acute yellow atrophy of the liver; in neither instance was there any evidence of xanthoma deposits.

We have presented the conflicting opinions and observations found in the study of this case of xanthoma tuberosum and mild diabetes mellitus with the hope that more extensive investigation of the entire subject of metabolism of fats and carbohydrates, in their relation to dermatology, will be carried on.

CONCLUSIONS

We have made three observations in reporting this case of xanthoma tuberosum in a young man which may throw some light on the etiology of this uncommon skin lesion:

1. The patient was quite obese and had consumed large quantities of fat in his diet for many years, eating as much as a pint of gravy a day for the past several years.

2. His occupation as a tile setter for a period of over two years may have traumatized the elbows and knees. The nodules did not appear until after he began this type of work, and they increased in size and number during that time only.

3. The case might be classed by some clinicians as prediabetic or latent diabetic. The blood sugar readings were 0.218 mg. at the end of the first hour and 0.164 mg. at the end of the second hour. The urine did not show the presence of dextrose at any time.

In reporting this case of xanthoma tuberosum, possibly in a patient with mild diabetes who has been subjected to chronic traumatism, the question arises with what are we dealing? Are we dealing with a simple disease of the skin due to some unknown metabolic disturbance, or is this a mild form of some grave constitutional disease?

30 East Seventy-Second Street — 59 East Sixty-Fifth Street.

20. Michael, J. C., and Nicholas, H. O.: Blood Lipids in Xanthoma, Arch. Dermat. & Syph. **29**: 228-239 (Feb.) 1934.

The Change in Surgery.—An entire change in the character of operative workmanship largely explains the transformation in the surgery of the past decade or two. The accurate and detailed methods in the use of which Kocher and Halsted were for so long the notable examples have spread into all clinics—at least into those clinics where you or I would wish to entrust ourselves for an operation. Observers no longer expect to be thrilled in an operating room; the spectacular public performances of the past, no longer condoned, are replaced by the quiet, rather tedious procedures which few beyond the operator, his assistants and the immediate bystanders can profitably see. The patient on the table, like the passenger in a car, runs greater risks if he have a loquacious driver, or one who takes close corners, exceeds the speed limit, or rides to applause.—Cushing, Harvey: Consecratio Medici and Other Papers, Boston, Little, Brown & Co., 1928.

THE EFFECT OF FLIGHT ON THE MIDDLE EAR

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AND
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Those familiar with aviation medicine are well aware that airplane pilots suffer more frequently from disturbances of the middle ear than from all other occupational diseases combined.[1]

The phenomenal growth of commercial air transport, which carried approximately one million passengers in 1936, makes this problem of interest and importance to the general medical profession, for airplane passengers are exposed to the same influences as the pilots during flight and in most instances are much more adversely affected.

ANATOMY AND PHYSIOLOGY

Since the deleterious effects of flight on the middle ear depend entirely on the peculiar structure and functioning of the eustachian tube, a brief anatomic, normal physiologic and special physiologic review of the latter structure will be presented.

Anatomy.—The eustachian tube is a slitlike, potential tube extending from the middle ear to the nasopharynx. It is formed of bone, cartilage and fibrous tissue.

The bony portion begins at the upper part of the anterior wall of the tympanic cavity and, gradually narrowing, passes downward, forward and mediad for about 12 mm., ending at the angle of the junction of the squamous and petrous portions of the temporal bone.

The cartilaginous portion of the tube extends from the bony portion to the nasopharynx. This section is about 24 mm. in length and is formed of a triangular plate of elastic fibrocartilage with its apex attached to the bony portion and its base placed directly under the mucous membrane of the nasopharynx, where it forms a prominence, the torus tubarius. The upper edge of the cartilage is bent laterally and takes the form of a hook on cross-section, open below and laterally. These walls of the canal are completed by fibrous tissue.

The lumen of the eustachian tube is narrowest at the junction of the bony and cartilaginous portions, the isthmus, and expanding rapidly in both directions reaches its largest diameter at the pharyngeal orifice. At rest, the lumen of the cartilaginous portion of the tube is a vertical slit with its walls opposed.

The mucous membrane of the eustachian tube is a direct extension of that of the nasopharynx and continues backward to line the middle ear completely. The mucous membrane of the bony portion of the tube is thin, but in the cartilaginous portion it is thick and very vascular, contains numerous mucous glands and is composed of ciliated columnar cells. Near the mouth of the eustachian tube is a variable amount of adenoid tissue known as Gerlach's or tubal tonsil. The pharyngeal ostium of the eustachian tube is located high up on the lateral wall of the nasopharynx. This opening is triangular, bounded behind by the torus tubarius and in front by the nasal cavity.

From the Physiological Research Laboratory, U. S. Army Air Corps, Wright Field.

1. Armstrong, H. G.: Our Present Physical Standard for Flying, J. Aviation Med. **5**: 107 (Sept.) 1934.

The muscles that are attached to the eustachian tube and their actions are as follows:

1. Levator veli palatini. Origin: inferior aspect of the pyramidis ossis temporalis and from the lateral end of the medial lamina of the eustachian tube. Insertion: downward, medially and forward parallel to the inferior margin of the medial lamina of the eustachian tube, uniting in the soft palate with the corresponding muscle of the opposite side. Action: elevates the soft palate, narrows the eustachian ostium and dilates the isthmus.

2. Tensor veli palatini. Origin: scaphoid fossa of the sphenoid bone, lateral and membranous lamina of the eustachian tube and angular spine of the sphenoid bone. Insertion: the fibers run downward and forward around the sulcus of the pterygoid hamulus and radiating mediad into the soft palate it attaches to the hard palate and to the corresponding muscle of the opposite side. Action: tenses the soft palate and opens the eustachian tube.

3. Salpingopharyngeus. Origin: inferior part of the ostium of the eustachian tube. Insertion: blends with the posterior fasciculus of the pharyngopalatinus muscle. Action: raises the upper and lateral parts of the pharynx, opens the ostium of the eustachian tube.

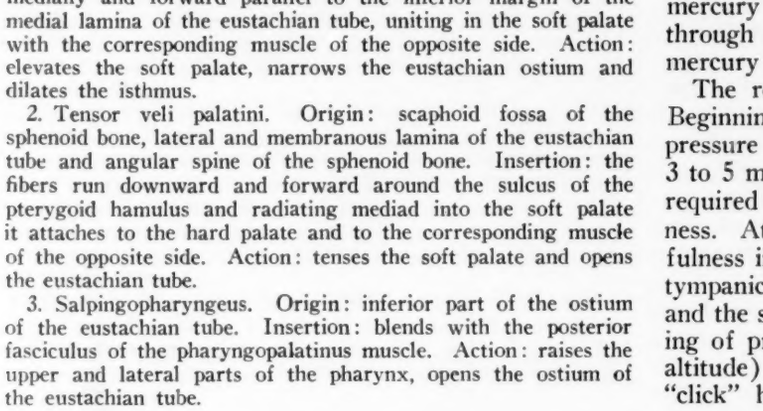

Fig. 1.—Gross anatomy of the eustachian tube showing (*A*) longitudinal section, (*B*) cross section near the eustachian ostium and (C) the ostium of the eustachian tube in its relation to the surrounding structures.

The gross anatomic features of the eustachian tube are shown in figure 1.

Normal Physiology.—The eustachian tube drains the middle ear and ventilates it. The motion of the cilia and the flutter-valve like action of the tube favors the motion of material from the ear to the nasopharynx and opposes motion in the opposite direction. The tube, while normally closed, is opened by contraction of its dialator muscles and at such times any air pressure differential existing between the middle ear and the atmosphere is equalized. This contraction may occur during swallowing, yawning and other similar physiologic acts.

Special Physiology.—Aircraft flights involve changes in altitude and this in turn involves changes in atmospheric pressure, the relationship between the two being as shown in figure 2. It is to be noted that, with ascent, equal changes of pressure involve increasing intervals of altitude. The rates and degrees of atmospheric pressure changes during flight depend on the rates and degrees of ascent or descent, and these factors become important when it is remembered that the ear is an air-filled closed cavity with pressure equalization possible only when the eustachian tube is opened.

Since the physiology of the eustachian tube under marked variations of atmospheric pressure had never been previously reported, we carried out laboratory investigations of this problem on five healthy men covering pressure variation rates of from 5.4 to 27 mm. of mercury per minute (200 to 1,000 feet per minute) through pressure ranges of from 760 to 141 mm. of mercury (0 to 40,000 feet altitude).

The results of this study were briefly as follows: Beginning at sea level pressure and decreasing the pressure at a constant rate, a pressure change of from 3 to 5 mm. of mercury (110 to 180 feet altitude) was required before any effect was perceptible in consciousness. At this point there appeared a slight sensation of fulness in the middle ears and examination showed the tympanic membranes to be slightly bulged. This bulging and the sensation of fulness increased with the decreasing of pressure until at 15 mm. of mercury (500 feet altitude) differential there was a sudden annoying "click" heard and felt in the middle ear, the drum snapped back to, or almost to, normal position and the sensation of fulness disappeared. The eustachian tube had been forced open by the excess pressure in the tympanic cavity and the ear pressure relieved by a sudden rush of air from the ear to the nasopharynx.

During the remainder of the pressure decrease this cycle was repeated except that all succeeding "clicks" occurred at intervals of only 11.4 mm. of mercury (435 feet altitude) pressure change. This indicated that it requires 15 mm. of mercury excess pressure in the middle ear at sea level conditions to force the eustachian tube open and that it remains open until the pressure is reduced to about 3.6 mm. of mercury, when it again closes, leaving 3.6 mm. of mercury (130 feet altitude) excess pressure in the ear. It had been assumed that, since the pressure altitude curve is not a straight line (fig. 2), the eustachian tube would open at equal intervals of pressure but at increasing intervals of altitude during ascent. Actually the reverse was found to be true, the tubes opening at 425 feet intervals (except the first), which amounts to 11.4 mm. of mercury pressure at sea level but only 3.5 mm. at 40,000 feet. The explanation of this phenomenon is probably based on the fact that air of the higher altitudes, being less dense, passes more readily through the eustachian tubes. These figures are averages based on repeated tests. Actually there was considerable variation between individuals and in the same individual. These variations ranged from 5 to 30 mm. at sea level conditions, but the averages for individuals were remarkably constant.

When the atmospheric pressure was increased instead of decreased, a totally different effect was obtained. Here the eustachian tube, acting like a flutter-valve, remained closed under all degrees of pressure (one subject tested to — 470 mm. of mercury pressure) and the tympanic membrane finally ruptured.

In the course of these studies, swallowing and other voluntary efforts to open the eustachian tubes were suppressed. However, in a subsequent series of tests it was found that opening the eustachian tubes by voluntary effort immediately equalized the ear pressure completely except that, after a negative pressure of from

80 to 90 mm. of mercury or more had developed in the tympanic cavity, it was then impossible for the eustachian muscles to overcome the negative pressure which held the fibrocartilaginous portion of the eustachian tube tightly collapsed, and it was then necessary to decrease the atmospheric pressure below that point before the eustachian tubes could again be voluntarily opened.

TERMINOLOGY

Since the condition being discussed is already a recognized occupational disease and seems destined to become of general professional concern, it seems logical to suggest a proper terminology.

In the United States the term "aviator's or aviation ear" has begun to appear in the literature, while in Germany the terms "barotrauma" and "tonetrauma" have been suggested. The former are obviously unsuitable and the latter may be criticized as not being descriptive of the disease. We therefore suggest "aero-otitis media" (aero, combining form from the Greek ἀήρ, ἀέρος, air, + otic, Greek ὠτικός, pertaining to the ear, + itis, Greek ιτις, inflammation of) as a suitable descriptive term for the new clinical entity about to be described, and that term will be used throughout the remainder of this paper.

DEFINITION

Aero-otitis media is an acute or chronic, traumatic inflammation of the middle ear caused by a pressure difference between the air in the tympanic cavity and that of the surrounding atmosphere, commonly occurring during changes of altitude in airplane flights and characterized by inflammation, discomfort, pain, tinnitus and deafness.

ETIOLOGY

Aero-otitis media is due to the lack of ventilation of the middle ear during changes of atmospheric pressure to the extent that the tympanic cavity is traumatized. There are two principal causes of improper middle ear ventilation: one a failure to open the eustachian tube voluntarily when necessary, the other the inability to open it.

Failure to open the eustachian tubes during changes in altitude in aircraft flights is most often due to ignorance of the necessity to do so but may be due to carelessness or to being asleep or may arise from the influence of analgesics or anesthetics or from coma. The first two of these instances usually occur among inexperienced pilots and passengers, the third in sleeper airplanes, and the last group on ambulance planes.

Inability to ventilate the middle ear voluntarily is much more prevalent than is generally recognized. Some of the most frequent causes of eustachian stenosis are acute and chronic infections of the upper respiratory tract, nasal obstructions, sinusitis, tonsillitis, tumors and growths of the nose and nasopharynx, paralysis of the soft palate or superior pharyngeal muscles, enlargement of the pharyngeal or tubal tonsil, inflammatory conditions of the eustachian tube or middle ear, scar tissue about the ostium of the eustachian tube following adenectomy, and malposition of the jaws.

The latter two conditions have but recently been recognized. Simpson [2] states that he has frequently seen considerable scar tissue about the pharyngeal ostium of the eustachian tube as the result of adenectomy when the adenotome had been allowed to pass too far laterally, causing trauma or laceration to the torus tubarius.

2. Simpson, R. K.: Personal communication to the authors.

The effect of malposition of the mandible in relation to stenosis of the eustachian tube was first reported by Costen [3] and later applied to aviation by Willhelmy.[4] They showed that in individuals with endentulous mouths, ill fitting dental plates, marked overbite, malocclusion, worn or lack of molar teeth either unilateral or bilateral or with any other condition in which there was a shortening of the vertical position of the lower jaw a compression-stenosis of the eustachian tube was likely to occur from a relaxation of the surrounding soft tissues.

SYMPTOMATOLOGY

The symptoms of aero-otitis media depend on the duration, frequency and severity of the trauma sustained.

Aero-Otitis Media, Acute.—Subjective Symptoms: Positive pressure of from 3 to 5 mm. of mercury in the middle ear are perceptible in consciousness to most individuals as a feeling of fulness in the middle ear. At about 10 to 15 mm. of mercury pressure the feeling of fulness is distinct and somewhat annoying and affects

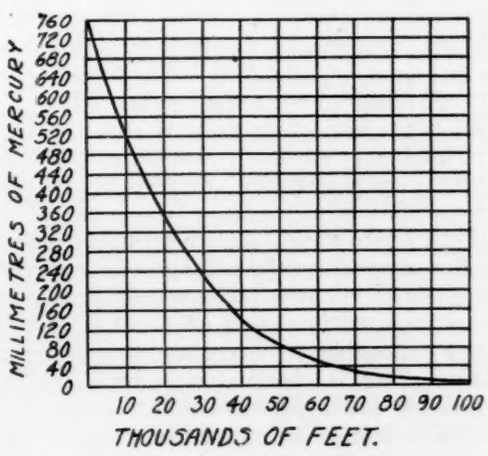

Fig. 2.—Altitude pressure curve.

the hearing by imparting a distant sound and a lessened intensity. Pressures between 15 and 30 mm. of mercury usually increase the discomfort and may be accompanied by tinnitus. The latter is of a steady hissing or roaring character or crackling and snapping. In some individuals there may be actual pain and vertigo of a mild nature. Above 30 mm. of mercury pressure in the middle ear there is increasing pain, tinnitus and vertigo, which finally becomes unbearable.

In normal cases about 15 mm. of pressure is sufficient to force air out through the eustachian tube, which relieves the pressure in the tympanic cavity and consequently the accompanying symptoms. However, this relief is initiated by an annoying "click," which is both felt and heard as the drum snaps back to normal position. In stenosis of the tube the pressure required to force it open varies with the degree of stenosis. In these cases the pressure may be relieved gradually over a period of time instead of instantaneously, and a greater amount of pressure remains in the middle ear after the tube has again closed.

In descent, in which the atmospheric pressure is increasing and the pressure in the ear becomes negative, the symptoms are the same as already described except

3. Costen, J. B.: A Syndrome of Ear and Sinus Symptoms Dependent upon Disturbed Function of the Temporomandibular Joint, Ann. Otol., Rhin. & Laryng. **43**: 1 (March) 1934.

4. Willhelmy, G. E.: Ear Symptoms Incidental to Sudden Altitude Changes and the Factor of Overclosure of the Mandible: Preliminary Report, U. S. Naval M. Bull. **34**: 533-541 (Oct.) 1936.

that the pressure is never relieved through its own force acting on the eustachian tube because of the flapper-valve like action of the latter. For this reason the greatest difficulty usually occurs during descent in aircraft, and the highest pressure differentials have been seen and studied experimentally under this condition. At about 60 mm. of mercury negative pressure the pain in the ear is severe and resembles that of acute otitis media. The tinnitus is marked and there is usually vertigo with beginning nausea. At from 60 to 80 mm. of mercury negative pressure the pain is very severe and radiates from the ear to the temporal region, the parotid gland and the cheek. Still higher pressures produce agonizing pain, which seems to localize not in the ear but deep in the substance of the parotid gland. Deafness is marked and vertigo and tinnitus usually increase, but the latter may disappear. At between 100 and 500 mm. of mercury pressure the tympanic membrane ruptures.

This occurrence is a dramatic episode in which the patient feels "as though hit along the side of the head with a plank," a loud explosive report is felt and heard in the affected ear, there is a sharp piercing pain on the affected side, vertigo and nausea become marked and collapse or generalized shock follows. With rupture of the tympanic membrane the acute pain quickly subsides, but a dull ache persists for from twelve to forty-eight hours. Hearing is distinctly diminished and vertigo and nausea may persist for from six to twenty-four hours.

With both positive and negative pressures, voluntarily opening the eustachian tube will immediately relieve all acute symptoms; but it is to be remembered that with a negative pressure in excess of about 80 or 90 mm. it becomes impossible to overcome this by muscular action, and relief is obtained only by a return to a higher altitude and a pressure difference of less than from 80 to 90 mm. of mercury. In cases in which the pressure has already produced trauma, opening the eustachian tube will not relieve the symptoms of that trauma, and they persist until recovery has taken place. The symptoms following trauma to the middle ear depend on the extent and duration of the trauma. Pressures that may be only uncomfortable at first finally become painful. Moderate trauma to the ear is followed by a sense of soreness in the ears and deafness lasting from one to twelve hours. Severe trauma is followed by pain, deafness, vertigo and tinnitus for from four to forty-eight hours. The pain is similar to that of suppurative otitis media, the tinnitus usually of a hissing or roaring character, the deafness of the conduction type and qualitative as well as quantitative.

Objective Symptoms: The objective signs depend on the amount of trauma sustained. In mild cases the drum may appear normal except for a moderate degree of bulging or retraction when a small amount of pressure differential still persists. An increased pressure in the tympanic cavity is denoted by a bulging of the tympanic membrane with a decrease or loss of the light reflex.

A negative pressure in the tympanic cavity is denoted by a retraction of the tympanic membrane with a decrease in size and brilliance of the light reflex and an increased prominence of the short process of the malleus with a foreshortened and more horizontal handle.

Following more severe trauma the drum may be retracted or bulging as already described, and in addition there is also an inflammation, which in appearance varies from a slight pink tinge to an angry red. In all cases the inflammation is most marked along the larger vessels that follow the malleus handle and around the drum periphery. When the inflammation is severe it cannot be distinguished from acute infectious otitis media and has frequently been mistaken for it.

Traumatic ruptures of the tympanic membrane are usually linear and quite extensive and may involve any portion of it. The margins of fresh ruptures are red and the whole drum is highly inflamed. There is usually a small amount of blood in the external auditory canal. If the labyrinthic wall is visible through the freshly ruptured drum membrane, it is seen to be red, congested and swollen.

Audiometer tests show a variable diminution of hearing, depending on the severity of the injury.

Aero-Otitis Media, Chronic.—Subjective Symptoms: In these cases there is a "full and stuffy" feeling in the ears and difficulty in "clearing" them. There is a partial loss of hearing, which is either unilateral or more pronounced on one side and in some instances may vary from day to day. Head noises may be present, but rarely vertigo or pain. The condition is worse after flights, during acute infections of the upper respiratory tract, during changes of weather and during fatigue or debilitated states.

Objective Symptoms: The ear drums are bulging or retracted, usually the latter. The drum membrane is dull, lusterless and slightly thickened and the light reflex is diminished or absent. Hearing acuity is diminished either unilaterally or bilaterally, and in the latter case there is usually a considerable difference between the two sides. This deafness is of the conduction type, the lower tones of the scale being lost first. Rinne's test is negative, Weber's test is positive and bone conduction is prolonged beyond the normal. Examination of the ostium of the eustachian tube shows the presence of a chronic inflammatory process or a mechanical obstruction.

DIAGNOSIS

The diagnosis of aero-otitis media is simple only if the history is known. The different traumatic inflammatory stages closely resemble the various stages of infectious otitis media and, as previously stated, have frequently been mistaken for it. Likewise, chronic aero-otitis media may be easily mistaken for a chronic infectious middle ear process unless a history of exposure to repeated changes of altitude is obtained.

COMPLICATIONS

While trained pilots usually try to avoid flying during periods when they have an acute infection of the upper respiratory tract, because of the discomfort and pain in the ears which almost invariably occurs, nevertheless a considerable amount of such flying has been done. It might naturally be expected in these cases that during descent the intermittent blasts of air from the pharynx to the tympanic cavity would carry with it septic material to the mechanically irritated tympanum and readily set up an acute inflammatory process. While it is possible or even probable that this septic material is carried into the tympanum, we have never seen it, nor are there any reports in the literature of this having occurred.

TREATMENT

Prophylaxis.—Those who take up aviation as a profession are, and should continue to be, carefully tested for patency of the eustachian tubes. This may readily

be done by means of the Politzer bag. Those who have a stenosis of the tube should be examined for chronic infection of the ear, sinuses, nose and pharynx, the mouth of the tube inspected for mechanical obstructions and the eustachian tube catheterized, if necessary. When any of these conditions are found and corrected, it is likely that the tube will become normal. Persons examined during periods of an acute infection of the upper respiratory tract should be reexamined after the infection has subsided before a final decision is made.

Probably the most useful prophylactic measure in all cases is proper instruction of the individual concerned. As long as the patency of the eustachian tube is under voluntary control there is no reason why any person in command of his faculties need experience difficulty at any rate of ascent or descent possible in present commercial aircraft. A simple explanation of the functioning of the eustachian tube followed by instructions as to how to ventilate the tympanum, when to ventilate it and how frequently this is necessary should suffice. Probably the simplest maneuver to actuate the normal eustachian tube is to swallow. It may also be accomplished by yawning, by singing, by shouting, by autoinflation and by contracting the salpingopharyngeal muscles. The last named defies description and can be learned only by practicing the suppression of a simulated yawn, at which time a roaring in the ears will indicate when the effort is successful.

Since the average person swallows involuntarily about every sixty to seventy-five seconds, it can be seen that a rate of climb or descent of 200 feet per minute will usually cause no discomfort, 500 feet per minute slight discomfort and 1,000 feet per minute moderate discomfort even though no effort is made to ventilate the tympanum artificially. Descents above 4,000 feet per minute may catch an individual unaware and create a tympanic vacuum which it is impossible to relieve by any method except a return to higher altitudes.

Chewing gum, eating, drinking or inhaling oxygen reduces swallowing to intervals of from one to thirty seconds. Sleeping and comatose individuals swallow at increased intervals and present a serious problem.

The allowable rate of ascent and descent of commercial airlines is set by the department of commerce at 300 feet per minute, and some such companies limit themselves to 200 feet per minute, although unusual conditions such as weather may require that both of these rates be exceeded to insure the safety of the flight. Those who are suffering from either temporary or permanent stenosis of the eustachian tube should be enjoined from flying except under controlled conditions of gradual changes of altitude through a maximum range not to exceed 2,000 feet. Those with an acute infection of the upper respiratory tract who insist on aerial flights should be prepared by gargling hot physiologic solution of sodium chloride or by having a detergent spray directed well back into the nasopharynx followed by the instillation or inhalation of atropine, ephedrine or benzedrine compounds.

Active Treatment.—Relief of pain is the first consideration in acute cases. The tympanum should be gently inflated by Politizer's method if the drum indicates the existence of either positive or negative pressure. Heat, dry or wet, is very effective. The instillation of copious quantities of water into the external auditory canal at from 110 to 115 F. followed by dry heat is the method of choice. Inflammation of the ostium of the eustachian tube requires treatment, and hot saline gargles followed by the instilling or mopping of astringents over that area will shorten the period of discomfort. In severe cases analgesics and even the injection of morphine, from one-eighth to one-fourth grain (0.008 to 0.016 Gm.), may be necessary for the first twenty-four hours.

The after-treatment consists of the application of dry heat to the ear and the inhalation or instillation of astringents into the nasopharynx every four hours. A plug of cotton in the external canal seems to add to the comfort, especially during cold weather.

If the condition does not subside materially in twenty-four hours, acute infectious disease of the middle ear should be suspected or a stenosis of the eustachian tube looked for and corrected.

Ruptures of the tympanic membrane should be left alone and treated expectantly.

In chronic aero-otitis media, stenosis of the eustachian tube should be looked for and treatment directed to its relief. Chronic infections of the ear, tonsils, sinuses, nose and pharynx should be considered as possible causative factors and corrected. Mechanical obstruction of the eustachian ostium or tube should be removed. If there is no apparent infection and no obvious obstruction of the tube, a malposition of the lower jaw with compression of the tube may be assumed and the jaw temporarily repositioned by the technic of Willhelmy [4] for clinical test and, if successful, permanent measures applied.

The eustachian stenosis having been relieved, the chronic inflammatory process in the tube and middle ear usually subsides spontaneously, but this may be hastened by gentle inflation of the ear or, if the congestion is marked, by the application of heat to the external ear and nasopharynx. Until the condition is entirely relieved, flying should be avoided as a potential source of irritation.

PATHOLOGY

In acute cases the first change is a passive hyperemia of the mucous membrane of the middle ear and eustachian tube from negative pressures or an ischemia from positive pressures. On relief of the pressure in either case there follows a period of active hyperemia, the degree and duration depending on the severity and duration of the trauma. With high pressures actual traumatic inflammation takes place accompanied by a serous exudate. The mucous membrane becomes congested and swollen, the eustachian tube blocked and the tympanic cavity a closed cavity. The epidermal layer of the tympanic membrane takes part in the reaction and becomes inflamed and may rupture.

Chronic aero-otitis media depends on frequently repeated insults to the tympanic cavity in which the tympanic membrane and the mucous membrane of the middle ear and of the eustachian tube become chronically congested and thickened.

The pain in aero-otitis media is not only local in origin but in severe cases may reflexly or directly affect the facial nerve and its branches and thus produce a neuralgic-like pain which radiates over the distribution of that nerve.

SUMMARY

A new clinical entity is presented which consists of a traumatic inflammation of the middle ear caused by a pressure difference between the air in the tympanic cavity and that of the surrounding atmosphere, commonly occurring during changes of altitude in airplane flights and characterized by inflammation, discomfort, pain, tinnitus and deafness.

A CLINICAL INVESTIGATION OF HISTIDINE THERAPY IN CASES OF PEPTIC ULCER

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The efficacy of histidine hydrochloride as a therapeutic agent in the treatment of peptic ulcer should be given careful consideration because, despite the existing uncertainty concerning its therapeutic value, there is still a tendency among some physicians to use this remedy. The interest in its therapeutic value is largely the result of the great number of encouraging reports which have appeared in medical literature, although more recent studies have not been so favorable.

To appreciate fully the status of histidine hydrochloride, a knowledge of the literature on the subject is essential. However, because this is voluminous, only the more important contributions will be discussed.

Mann and Williamson [1] have for a number of years carried on experiments, on the intestinal tract of dogs, in transplanting the duodenal secretions to the terminal end of the ileum. As a result of such an operation, "post-pyloric ulcers of the subacute or chronic type similar pathologically to those found in man, were noted, usually in two to four weeks," and the animals also showed other serious effects, such as loss of weight, diarrhea and melena. These authors expressed the opinion that the "diversion of the secretions which neutralize the gastric juice as it leaves the stomach to another portion of the gastrointestinal tract was the cause of the peptic ulcer formation."

In 1933 Weiss and Aron,[2] using the same technic, reasoned that such an operation prevents further enzyme action, especially proteolytic on the food coming from the stomach, and thus produces an amino acid deficiency which is responsible for the formation of ulcer. Using dogs as controls, they tried the amino acids not synthesized by the body (lycine, tryptophan, histidine and cystine) and discovered that the animals that were given parenterally histidine and tryptophan or histidine alone did not acquire ulcers, although they did have severe constitutional symptoms, such as anemia, loss of weight and diarrhea. Autopsies were performed at the end of three and six weeks on the control dogs that were not treated, and peptic ulcers were observed in both.

The same investigators [3] then applied this treatment clinically to a number of patients and reported excellent results. The favorable reports of Weiss and Aron stimulated a number of other investigators to apply histidine therapy clinically. Most of the European clinicians, although each of them had only a small series of cases, were highly enthusiastic about this form of treatment. Among those reporting excellent results were Blum,[4] Lenormand,[5] Hessel,[6] Bogendörfer,[7] Spencker [8] and Smith.[9]

A number of investigators who studied larger series of cases were not as enthusiastic about their results as this group. However, the results that they obtained seemed to favor the use of the product. The first large series—fifty-two cases—was reported by Bulmer [10] of England. In thirty-five cases the ulcers were gastric and in seventeen duodenal. Bulmer obtained 58 per cent of symptomatic and x-ray cures and 19 per cent of clinical improvement with no definite x-ray improvement, and had 23 per cent of failures. He concluded that his patients with gastric ulcer responded more readily than those with duodenal ulcer.

Among the first observers in this country to use histidine were Volini and McLaughlin,[11] who, in their initial report, on twenty-one cases, indicated a very favorable response in all the patients treated by this form of therapy. They noted a decrease of gastric acidity in most of them. In a later report,[12] on seventy-three cases, the results described were also favorable. A six months check-up revealed that 79 per cent of the patients were clinically improved and that the treatment of 21 per cent was regarded as a failure, but the results of x-ray examination in only twenty-seven cases became negative for ulcer. Eads,[13] describing a series of thirty-five cases—thirty of duodenal and five of gastric ulcer—reported six cases in which there was clinical and x-ray evidence of immediate healing, eight in which there was clinical but not x-ray evidence of improvement and twelve in which the use of histidine was a failure. Rafsky [14] and others have also reported favorable results with the use of histidine hydrochloride.

However, more recent studies do not substantiate the favorable results obtained by the early investigators. Sandweiss,[15] for example, treated sixty-seven patients suffering from peptic ulcer, fifty-three of them with a modified Sippy regimen and forty with histidine. Histidine produced remission of symptoms in 55 per cent and the modified Sippy treatment in 51 per cent. However, in a six months follow-up study, 85 per cent of the histidine-treated patients had recurrences, as compared to only 31 per cent of the patients treated with diet and alkalis. As controls, he treated twenty patients by daily injections of 5 cc. of distilled water, and 60 per cent became symptom free. In conclusion he stated that the routine use of histidine in the treatment of peptic ulcer is not advisable. However, it may

Miss Kanet E. Damback, R.N., cooperated in this study.

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15. Sandweiss, D. J.: Treatment of Gastroduodenal Ulcer with Histidine Monohydrochloride (Larostidin), J. A. M. A. **106**: 1452 (April 25) 1936.

be used for patients who do not respond to a regimen involving diet, alkalis and antispasmodics because about 50 per cent of such patients became symptom free and an additional 20 per cent were moderately improved. In a later study, Sandweiss [16] concluded that histidine and other forms of injections may produce remissions, but he expressed the opinion that such remissions are due either to "psychic effects" or to "the intermittent nature of the disease." He admitted, however, that most of the patients treated with parenteral injections were on a diet similar to diet 3 (a modified Sippy diet) at the time that treatment was begun and that the administration of alkalis was continued if it had been begun before the injection treatment was instituted.

At the request of the Council on Pharmacy and Chemistry of the American Medical Association, Martin [17] treated forty-one patients with histidine and forty control patients with a modified Sippy regimen. Of the former, twenty-eight were treated with "Larostidin" (Hoffmann-LaRoche) and thirteen with a 4 per cent aqueous isotonic solution of histidine hydrochloride. The results in the two series were similar; 73.2 per cent of the patients treated with histidine and 78.4 per cent of the control patients obtained symptomatic relief. The frequency of relapses in both series was also similar. For example, in a period of observation of from six months to one year, relapses occurred in twenty-six of the histidine-treated patients and in twenty-four of the control group.

"As a result of its consideration of the paper of Martin and others," the Council concluded that, "although there is at present insufficient clinical evidence for its evaluation, histidine hydrochloride shows promise of possible usefulness in the treatment of gastric and duodenal ulcer." However, the Council declared that "Larostidin" (Hoffmann-La Roche, Inc.) was not acceptable for New and Nonofficial Remedies because of the fact that it was marketed with unwarranted therapeutic claims, and it was voted to postpone further consideration of histidine monohydrochloride until adequate clinical evidence of its therapeutic usefulness was available.

Furthermore, not only clinical but experimental evidence as well fails to support the claims made for histidine therapy in cases of peptic ulcer. This was conclusively pointed out by Fontès and Bauer,[18] in experiments which they carried out on dogs, and by Barry and Florey,[19] using the operation of Meckel's diverticulum. The work of Flood and Mullins [20] and the experimental researches of Sandweiss, Saltzstein and Glazer [21] also failed to corroborate the results obtained by Weiss and Aron.

A survey of the literature on the subject reveals the interesting fact that recent investigators do not agree with the highly enthusiastic reports of a large number of early research workers. In fact, they point out that histidine therapy is even less beneficial than the accepted diet-alkali regimen.

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17. Martin, K. A.: Histidine Hydrochloride versus Diet and Alkalis in Treatment of Peptic Ulcer, J. A. M. A. **106**: 1468 (April 25) 1936.

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19. Barry, H. C., and Florey, H. W.: Histidine Treatment of Peptic Ulcer, Lancet **2**: 728 (Sept. 26) 1936.

20. Flood, Charles A., and Mullins, Clinton, R.: Experimental Peptic Ulcer, Am. J. Digest. Dis. & Nutrition **3**: 249 (June) 1936.

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Because a careful study of the cases reported shows that the majority of patients who were treated with histidine were at the same time on some form of a modified Sippy treatment, either at the beginning or throughout the course of their treatment, a more exact study seemed imperative. In a clinical study it is extremely difficult to gage accurately the beneficial effect that the patient receives from this type of therapy because a number of factors are involved which are difficult of control. Therefore, the authors felt that to determine the therapeutic value of this remedy it was essential to rule out as many as possible of the factors that would influence the healing of the ulcer. To accomplish this, a graduated form of therapy was instituted, and to substantiate the study further, a control series of experiments was performed on a similar group of patients.

CLINICAL MATERIAL

Uniformity of clinical material was sought. Practically all the patients presented a similar social background, the majority of them being of foreign extraction, having language difficulty and being subsidized by the Home Relief Bureau. They were all men and ranged from 22 to 52 years of age. Only patients with duodenal ulcer were selected. All were ambulatory. The majority presented the typical duodenal ulcer syndrome, and all had definite hyperacidity. On x-ray examination, all showed the characteristic "duodenal cap deformity." A large percentage of the patients had ulcers of the chronic recurrent variety and had had some other type of therapy previously.

GRADUATED METHOD OF STUDY

The method employed consisted of the daily intramuscular injection of 5 cc. of the solution, one group receiving histidine and the control series receiving sterile water. The hypodermic injections were administered by the clinic nurse, and a series of twenty-four injections was given daily.

Fifty patients were treated by this method, twenty-five receiving histidine solution ("Larostidin") and twenty-five receiving sterile water. At the beginning of the treatment all other therapeutic factors, such as diet and the administration of alkalis and antispasmodics, were eliminated. The patients were instructed to remain on a liberal diet. However, if at the end of the first week marked relief was not obtained, they were advised to stay on a modified Sippy diet. At the end of the second week, if they still complained of symptoms, antacids and antispasmodics were added. The majority of the patients welcomed this form of therapy and cooperated to a greater degree than when they received the classic diet-alkali treatment.

RESULTS

In the histidine series, only one of the twenty-five patients studied was completely relieved by the injection treatment. This patient remained on a nonrestricted diet throughout his course of therapy. Twenty-four patients still had definite symptoms at the end of the first week, and these were put on a modified Sippy diet. In this group of twenty-four, thirteen obtained from marked to complete relief within twenty-four to forty-eight hours. At the end of the second week the administration of antispasmodics and antacids to the remaining eleven was begun, but only three obtained definite relief. No relief was obtained by the remaining eight throughout the course of treatment.

The same procedure was followed with the control series. In a group of twenty-five patients treated with sterile water, three obtained complete relief of symptoms despite the fact that they were on a liberal diet throughout the course of treatment. These patients received no other type of therapy. At the end of the first week, the remaining twenty-two were put on a modified Sippy diet because they still had symptoms. Fourteen obtained from marked to complete relief in from twenty-four to forty-eight hours, and two others were definitely relieved on the addition of antacid and antispasmodics, at the end of the second week. Six patients failed to respond to any form of therapy.

In a follow-up study varying from six months to one year, it was noted that ten of the histidine-treated patients had relapses and that eleven of the control series had remissions.

A comparative study of the gastric chemistry was made at the beginning and at the termination of the course of injections but failed to demonstrate any appreciable uniform improvement. Although in some cases there was a decrease in free hydrochloric acid at the termination of treatment, in a corresponding number there was an increase. One may expect to find such variations in the chemistry of the stomach of the same person on different occasions. This was convincingly pointed out by Alvarez, Van Zant and Osterberg.[22]

Response to Graduated Form of Therapy

	Histidine	Sterile Water	Combined
Total cases treated	25	25	50
Marked relief obtained solely from injections	1	3	4
Marked relief obtained only when a modified Sippy diet was added to the treatment at end of first week	13	14	27
Definite relief obtained only when antispasmodics and antacids were added to the treatment by injection and diet at end of second week	3	2	5
Total number responding to treatment	17	19	36
Failures	8	6	14
Follow-up, from six months to one year, number of recurrences	10	11	21

X-ray study is of great diagnostic value in cases of duodenal ulcer but proved of little importance in evaluating the healing of the ulcer in our cases. It was repeatedly demonstrated that, despite the fact that the patient was symptom free for as long as three months, "duodenal cap deformity" tended to persist in most of the cases.

COMMENT

The graduated form of study, substantiated by a control series, eliminates to a great extent the accepted therapeutic aid which diet, antispasmodics, alkalis and rest give to the patient suffering from peptic ulcer and places histidine therapy to a marked degree on its own merit. Previous investigators did not completely eliminate these therapeutic factors.

However, before giving credit to any form of therapy for the results obtained in any case of peptic ulcer, one must take into consideration several important facts which influence the prognosis. Periodicity of the attacks is characteristic of the disease, and the response to therapy depends therefore in great measure on the duration of the attacks. One may assume that a goodly percentage of the patients who do not improve after a month's treatment will become symptom free if another form of therapy is instituted. Patients with shorter histories tend to react more quickly and more favorably than those with longer histories. The same holds true for the age of the patients; the younger the patient, the better the response to therapy. It has also been observed that gastric ulcers have a tendency to heal more rapidly than duodenal ulcers. Pathologic factors, such as the degree of scarring, periduodenal adhesions and possible associated duodenitis have an important rôle. The etiologic factors must also be accorded due consideration. In evaluating the results of the therapy of peptic ulcer, it is extremely important to realize that these factors have a direct influence on the prognosis in a given case and that the therapeutic agent employed is of only secondary importance.

A number of investigators have offered several plausible theories for the good results obtained with histidine therapy. However, in evaluating the results of our studies, we prefer to favor the explanation that the beneficial effects obtained with histidine were merely the response to a form of psychotherapy. This assumption is well borne out when it is considered that four of our patients, three of whom received injections of sterile water, responded very rapidly—within twenty-four to forty-eight hours—to the parenteral therapy alone. This theory was frequently demonstrated to our satisfaction, especially in the group that received sterile water. As soon as the injections were stopped a certain number of the patients had a recurrence of symptoms, and as soon as parenteral therapy was resumed their pain disappeared. It is justifiable to conclude from the results of this study that a certain proportion of patients who have no complicating pathologic conditions will be amenable to some form of psychotherapy. Consequently, credence must be given to the increasingly popular conception that peptic ulcers frequently are merely local manifestations of a generalized psychogenic disease.

SUMMARY

A brief survey of the literature on the use of histidine in the treatment of peptic ulcer revealed the interesting fact that the extremely favorable results reported by early investigators have not been borne out by more recent experimental and clinical research.

With the use of a graduated form of therapy, it was found that the majority of the patients studied obtained definite relief only when a modified Sippy treatment was instituted.

It was found that the injection of sterile water resulted in slightly more so-called cures than the histidine form of therapy. It must therefore be concluded that histidine not only lacks specificity but is no more beneficial than the injection of sterile water in the therapy of peptic ulcer.

An interesting phenomenon observed was that four of the patients (three of whom received sterile water and the other histidine) responded remarkably well solely to the parenteral method of therapy. Thus, one must seriously consider the value of psychotherapy in some of the uncomplicated cases.

The ease and rapidity with which a patient responds to therapy depends not alone on the remedy used but also and to an even greater degree on the etiologic and pathologic factors involved. Therefore, individualization of therapy is most essential.

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SERODIAGNOSTIC TESTS FOR SYPHILIS AS PERFORMED BY THIRTY-NINE STATE LABORATORIES

A COMPARATIVE STUDY

A REPORT OF THE COMMITTEE ON EVALUATION OF SERODIAGNOSTIC TESTS FOR SYPHILIS

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The results achieved in the first evaluation study of serodiagnostic tests for syphilis in the United States [1] reflected great credit on several of the serologists who had developed original methods. In the first evaluation study a total of 14,238 comparable blood samples and 2,860 comparable spinal fluid samples were tested by thirteen American serologists. It was pointed out in the report of the committee that the actual serologic testing was done under relatively ideal conditions in the laboratories of the originators of the methods and that the results did not necessarily compare with those attained in other laboratories utilizing the same methods.

In the second evaluation study [2] the committee attempted to meet more closely than was possible in the first evaluation project the conditions encountered in ordinary practice. The efficiency of thirty state, municipal or private laboratories in the performance of serodiagnostic tests for syphilis was measured. The results achieved in many of the state and local laboratories were quite comparable with those attained by the originator of the method employed, who tested comparable specimens as a control measure. It was also obvious that the serologic testing in certain state and local laboratories was highly inefficient.

These observations led the committee to recommend that the United States Public Health Service make an annual comparison of serodiagnostic tests for syphilis done by all state laboratories. It was further recommended that the state laboratories should in turn offer a similar opportunity for comparative testing to the municipal, hospital and private laboratories within each state. It was, however, quite apparent from the results reported by some of the state laboratories that it would be unwise for them to inaugurate a method of control of the local laboratories within their boundaries until they had attained a much higher level of efficiency.

In accordance with the recommendations of the committee, the Surgeon General of the United States Public Health Service invited the health officers of the forty-eight states and the District of Columbia to participate in an evaluation study. The purpose of this project was to determine the efficiency of the performances of the various serodiagnostic tests for syphilis as carried out in those laboratories. The invitation was accepted by the health officers of thirty-nine states. Each health officer was asked to designate the test or tests the performance of which he desired to have evaluated. The tests specified determined the choice of the methods to be employed as control tests. Thus the laboratories of William A. Hinton, Reuben L. Kahn, Benjamin S. Kline and John A. Kolmer were selected and will be referred to in this report as the control laboratories.

The details of the methods utilized for the selection of donors, the collection and distribution of specimens and the tabulation and analysis of reports were similar to those described in connection with the first evaluation study.[3] The blood specimens originated from two points, the department of dermatology of the University of Illinois College of Medicine and the department of dermatology and syphilology of the University of Virginia Department of Medicine. Approximately 5 cc. of whole blood from each donor was sent to each participating laboratory and to each control laboratory, the special facilities of the postal service being utilized to insure rapid transit and delivery. This necessitated the withdrawal of a single specimen of approximately 250 cc. of blood from each donor. Specimen tubes were labeled by code letter and number only. The period of collecting and testing the group of 300 specimens used in this study extended from Nov. 1, 1936, to March 15, 1937.

The group of 100 presumably nonsyphilitic donors whose serums were used to determine the specificity (freedom from false positive reactions) of the various tests was, for the most part, made up of medical students between the ages of 20 and 30 years who were apparently free of disease. A control group of this type is, from the standpoint of serologic testing, much more apt to be normal than a group of similar size drawn from hospital patients.

The 200 syphilitic patients used as donors for the purpose of determining the sensitivity (true positive reactions) were selected from the clinics of the department of dermatology and syphilology of the University of Virginia Department of Medicine under the supervision of Dr. Dudley C. Smith and from the department of dermatology of the University of Illinois College of Medicine under the supervision of Dr. F. E. Senear. Of the donors used in the final tabulation 66 per cent were males and 34 per cent were females. Five per cent of the donors had early secondary infection. The remainder were individuals in whom the disease was of longer standing and who had received varying amounts of treatment.

Of the thirty-nine participating laboratories, twenty-five entered two tests: one complement fixation test and one flocculation test. One laboratory entered two complement fixation tests and one flocculation test. Three participants entered two flocculation tests and one complement fixation test. Two laboratories entered two flocculation tests only. Eight laboratories performed one test; of these five were complement fixation tests and three were flocculation tests. Thus, a total of seventy-four serologic performances was carried out. A total of 11,739 samples was distributed.

In a previous report by the committee [1] the difficulty of finding an adequate method for the rating of doubtful serologic reactions was discussed and cognizance taken of the undoubted value of such observations in treated cases. It is also recognized that doubtful reports on serums of the nonsyphilitic donors used in this study must be looked on as evidence of faulty technic. These factors should, in all fairness, be taken

Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1937.

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2. The Efficiency of State and Local Laboratories in the Performance of Serodiagnostic Tests for Syphilis, Ven. Dis. Inform. **18**: 4 (Jan.) 1937; Am. J. Pub. Health **27**: 15 (Jan.) 1937.

3. Evaluation of Serodiagnostic Tests for Syphilis, Ven. Dis. Inform. **15**: 387 (Dec.) 1934; J. A. M. A. **103**: 1705 (Dec. 1) 1934.

into consideration in arriving at a determination of the value of a serologic test in any laboratory. The committee believes that a laboratory that does not report doubtful reactions in nonsyphilitic individuals should receive credit for doubtful reactions in treated cases of syphilis. Conversely, there should be a deduction for doubtful reactions reported in cases in the control group of presumably nonsyphilitic individuals. Chart 3 shows the added credits and deductions: as in the previous evaluation studies the reports of doubtful reactions are given a negative rating in the computation of percentages in tables 1 and 2.

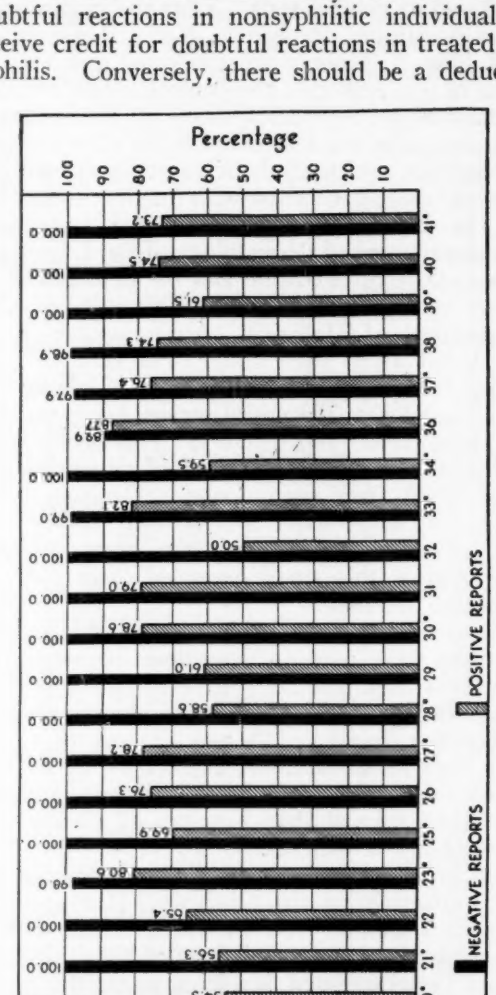

Percentage
100 90 80 70 60 50 40 30 20 10
POSITIVE REPORTS
NEGATIVE REPORTS
Control (1)
(1) Performed by John A. Kolmer, Philadelphia, Pa.
* Not designated as the Kolmer test.

Chart 1.—Sensitivity (true positive reactions) of blood tests based on the percentage of positive reports in 200 patients with syphilis contrasted with the specificity (freedom from false positive reactions) of blood tests based on the percentage of negative reports in 100 normal presumably nonsyphilitic persons.

In tables 1 and 2 and charts 1 and 2 the tests are divided into two main groups, complement fixation and flocculation. An exact classification of procedure was not possible because of the many departures that were taken from the technics described by the originators of the various tests. For example, relatively few participants utilized a technic that was in strict accordance with the Kolmer, Kahn or Kline methods. Divergence from the prescribed technic involved differences in the quantities of the individual components as well as in their proportion, one to another; a wide range of difference in methods for antigen titration and the establishment of the test dose for hemolysin, complement and antigen, and definite modifications in the treatment of the serum and the general mechanism of the tests. In several instances there was adherence to technical procedures that had been either modified or abandoned by the originators.

It is recognized that anticomplementary reactions in some cases may have been provoked by the hazards of transportation. Many of the participating laboratories reported some specimens as hemolyzed or otherwise unfit for testing; these reports do not enter into the final calculations. Therefore it is felt that the classification of anticomplementary results as unsuitable specimens would serve to avoid penalizing the laboratories in which an effort was made to test a hemolyzed or otherwise unsuitable specimen. It should be observed, however, that in certain laboratories a disproportionately high incidence of anticomplementary reactions was reported.

COMMENT AND RECOMMENDATIONS

One of the essential features in any program for the control of syphilis is the general availability of efficient laboratory diagnostic service. Reliable serodiagnostic testing of blood and spinal fluid specimens is a valuable method for the diagnosis of syphilis and for the estimation of the influence of therapeutic agents. While it is not deemed feasible or advisable to restrict the performance of serologic testing to state laboratories, these laboratories should maintain a sufficiently high standard to provide a model of efficiency for the municipal, hospital and private laboratories within the state.

A study of the tables and graphs reveals that some of the state laboratories are qualified neither to perform efficient serodiagnostic service nor to inaugurate any system of state licensure or approval of local laboratories within their respective states.

On the other hand, it is gratifying to observe that in many of the state laboratories the performance of serodiagnostic tests for syphilis is maintained at a highly efficient level. In many of the laboratories participating in this study the results attained compared most favorably with the control tests as carried out by the originators of the methods. It should be observed however that, in some of the laboratories performing more than one test for purposes of evaluation, one of the tests was performed in an efficient manner while the other yielded poor results. In this connection it should be stated that several laboratories entered tests which they did not use as a routine in order to determine their ability to perform such tests efficiently.

A study of the technics employed in the serodiagnostic tests for syphilis submitted by the state laboratories reveals that many of them have deviated greatly from the technics described by the originators of the methods. Many of the tests that were designated as Hinton, Kahn, Kline or Kolmer tests by the performers were so modified that it would be an injustice to the originators of the methods to refer to them as such.

The data derived from this investigation indicate that the routine employment of a single serodiagnostic test, although performed by competent workers, is occasionally unreliable. If a single test is used as a routine the laboratory should be prepared and willing to carry out a second test with a different method on request.

The extraordinary disparity in the results of this study indicates the urgent need for the provision of intensive and extensive training of personnel in certain of the laboratories.

The committee makes the following recommendations to state health officers:

1. That provision be made for adequate training of state and local laboratory technicians in the laboratories of the originators of the methods employed in the respective laboratories, and that in the future only thoroughly competent technical personnel be employed. Funds now being made available to the states under the provision of the Social Security Act and allotted for the training of personnel should be utilized for the tuition and stipend of the state and local laboratory technicians.

2. That a system of periodic inspection of state laboratories by

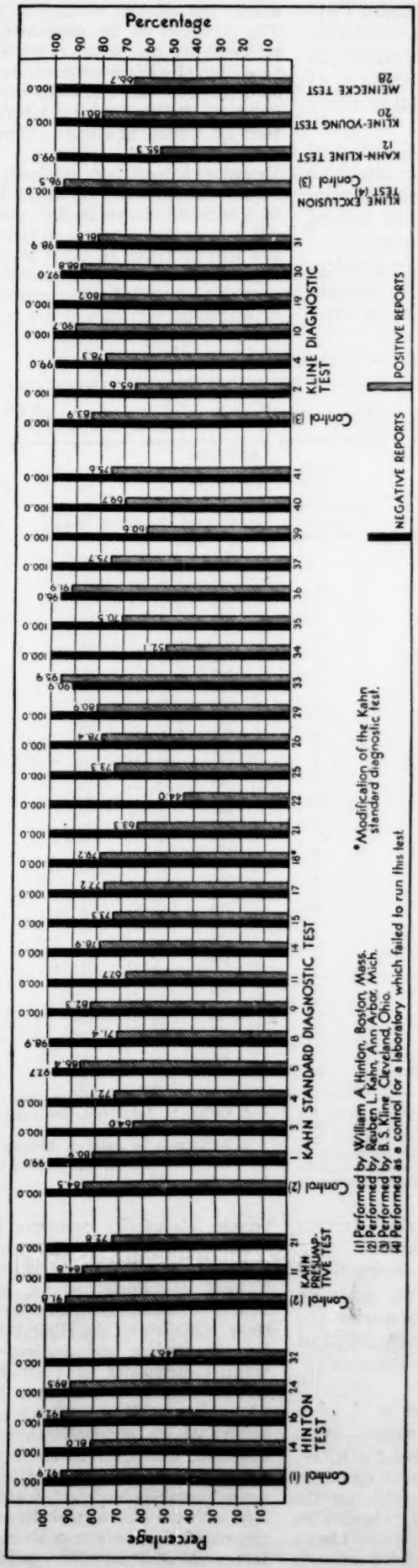

Percentage
KAHN STANDARD DIAGNOSTIC TEST
KAHN PRESUMPTIVE TEST
HINTON TEST
KLINE DIAGNOSTIC TEST
KLINE EXCLUSION TEST (4)
KAHN-KLINE TEST
KLINE-YOUNG TEST
MEINECKE TEST 28
Control (1)
Control (2)
Control (3)
NEGATIVE REPORTS
POSITIVE REPORTS
(1) Performed by William A. Hinton, Boston, Mass.
(2) Performed by Reuben L. Kahn, Ann Arbor, Mich.
(3) Performed by B. S. Kline, Cleveland, Ohio.
(4) Performed as a control for a laboratory which failed to run this test.
*Modification of the Kahn standard diagnostic test.

Chart 2.—Sensitivity (true positive reactions) of blood tests based on the percentage of positive reports in 200 patients with syphilis contrasted with the specificity (freedom from false positive reactions) of blood tests based on the percentage of negative reports in 100 normal presumably nonsyphilitic persons.

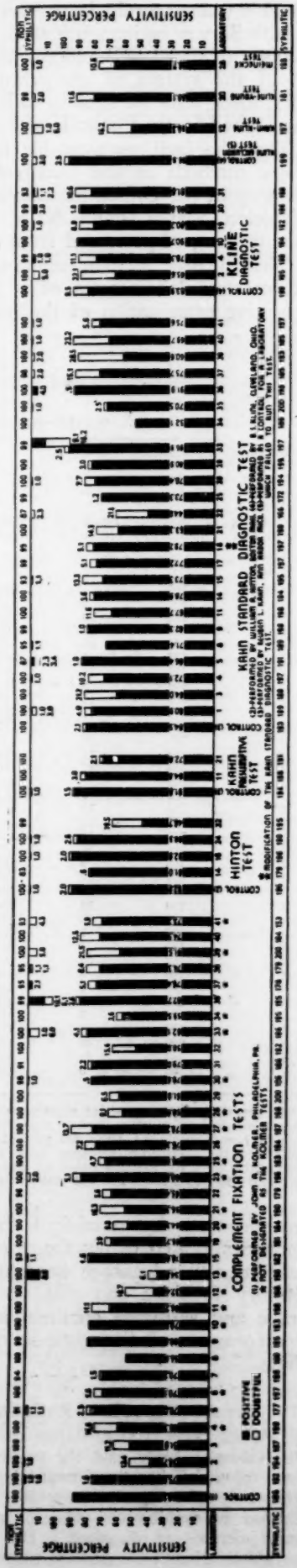


Chart 3.—Sensitivity (true positive reactions) and specificity (freedom from false positive reactions) of blood tests for syphilis based on the percentage of positive reports in a group of 200 patients with syphilis and on the percentage of false positive reports in a group of 100 normal presumably nonsyphilitic persons.

thoroughly trained serologists of the United States Public Health Service be inaugurated and made available on the request of state health officers, and that advantage be taken of the system of comparative examination of serodiagnostic tests for syphilis to be extended annually by the United States Public Health Service.

3. That the facilities available for special study of serologic methods in the Venereal Disease Research Laboratory of the United States Public Health Service at Stapleton, Staten Island, N. Y., be further utilized for the training of personnel from state laboratories.

4. That the need is again emphasized for the development by state laboratories of a system of periodic comparative examination of the performance of serodiagnostic tests by municipal, hospital and private laboratories located within the respective states.

5. That full advantage be taken of existing local laboratory facilities and that provisions be made to approve and subsidize qualified local laboratories for the performance of diagnostic services in the control of syphilis.

TABLE 1.—*Complement Fixation Tests* [1]

Serologic Tests Performed and Code Numbers of Participating Laboratories	Sensitivity: Total Syphilitic Patients (200) — Specimens Examined (Excluding Unsatisfactory and Anticomplementary)	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Unsatisfactory [2] and Anticomplementary Specimens	Specificity: Normal Presumably Nonsyphilitic Individuals (100) — Specimens Examined (Excluding Unsatisfactory and Anticomplementary)	Doubtful Reports	False Positive Reports	Percentage of False Positive Reports	Percentage of Negative Reports	Unsatisfactory [2] and Anticomplementary Specimens
Complement fixation tests											
Control [3]	186	..	164	88.2	14	100	..	..	...	100.0	..
1	192	3	144	75.0	8	100	1	1	1.0	99.0	..
2	194	26	75	38.7	6	100	1	..	...	100.0	..
3	187	21	97	51.9	13	100	..	..	...	100.0	..
4*	199	31	120	60.3	1	100	..	..	...	100.0	..
5	177	4	138	78.0	23	91	1	1	1.1	98.9	9
6*	197	11	138	70.1	3	100	..	..	...	100.0	..
7	198	3	139	70.2	2	94	..	..	...	100.0	6
8	189	..	104	55.0	11	100	..	..	...	100.0	..
9	195	..	156	80.0	5	99	..	..	...	100.0	1
10*	193	..	154	79.8	7	100	..	..	...	100.0	..
11*	198	22	131	66.2	2	100	..	..	...	100.0	..
12*	198	37	74	37.4	2	100	..	..	...	100.0	..
13*	198	12	69	34.8	2	100	..	8	8.0	92.0	..
15	182	3	143	78.6	18	93	..	1	1.1	98.9	7
19	181	7	119	65.7	19	100	..	..	...	100.0	..
20*	184	18	100	54.3	16	100	..	..	...	100.0	..
21*	190	31	107	56.3	10	100	..	..	...	100.0	..
22	179	10	117	65.4	21	96	..	..	...	100.0	4
23*	196	10	158	80.6	4	100	2	2	2.0	98.0	..
25*	193	9	135	69.9	7	100	..	..	...	100.0	..
26	194	14	148	76.3	6	100	..	..	...	100.0	..
27*	197	27	154	78.2	3	100	..	..	...	100.0	..
28*	198	18	116	58.6	2	100	..	..	...	100.0	..
29	200	13	122	61.0	..	100	..	..	...	100.0	..
30*	196	1	154	78.6	4	98	1	..	...	100.0	2
31	186	4	147	79.0	14	91	..	..	...	100.0	9
32	192	30	96	50.0	8	100	..	..	...	100.0	..
33*	196	8	161	82.1	4	100	6	1	1.0	99.0	..
34*	195	7	116	59.5	5	100	..	..	...	100.0	..
36	195	5	171	87.7	5	99	6	10	10.1	89.9	1
37*	178	9	136	76.4	22	95	..	2	2.1	97.9	5
38	179	15	133	74.3	21	95	1	1	1.1	98.9	5
39*	200	43	123	61.5	..	100	5	..	...	100.0	..
40	184	23	137	74.5	16	100	..	..	...	100.0	..
41*	153	9	112	73.2	47	93	4	..	...	100.0	7

1. The sensitivity (true positive reactions) of serodiagnostic tests for syphilis (complement fixation tests) based on their ability to detect syphilis in blood specimens from 200 patients with secondary and late syphilis; and the specificity (freedom from false positive reactions) of serodiagnostic tests for syphilis based on their ability to exclude syphilis in 100 blood specimens from normal presumably nonsyphilitic individuals.

2. Owing to hemolysis, breakage, leakage or other causes; includes specimens not received.

3. Performed by John A. Kolmer, Philadelphia.

* Not designated as the Kolmer test.

ABSTRACT OF DISCUSSION

DR. FREDERICK H. LAMB, Davenport, Iowa: This serodiagnostic evaluation study, and the studies that preceded it, are symbolic of a definite step forward in the accurate diagnosis, and hence in the control, of syphilis. No campaign for the eradication of syphilis can succeed unless it is founded on accurate methods of diagnosis. The officers of the United States Public Health Service are to be congratulated not only for sensing the need for such investigations but also for the unique and efficient manner in which they were carried out. The personnel of the committee indicates again that greater achievements are possible when public health agencies and practicing physicians cooperate in such an undertaking. It was apparent from the results of the second evaluation study that many hospital and private laboratories perform serodiagnostic tests for syphilis in a more efficient manner than certain of our state laboratories. Conversely, some state laboratories performed such tests more efficiently than some of the private and hospital laboratories. I should like to direct attention to the fifth recommendation in the committee's report; namely, "that full advantage be taken of existing local laboratory facilities and that provision be made to approve and subsidize qualified laboratories for the performance of diagnostic services in the control of syphilis." The program of elevating the standards of diagnostic service will not be complete unless hospital and private laboratories cooperate in the plan; furthermore, the broad scope of the syphilis control program demands the utilization of all qualified local laboratories. It would be disastrous if local laboratories serving hundreds of medium sized and smaller communities should be legislated into extinction. In many communities the clinical pathologist stands as a bulwark between modern and medieval medical practice. Any plan which contemplates the centralization of laboratory diagnostic services in a state laboratory threatens the existence of local laboratories. Moreover, such a plan would deprive the community of the multitudinous services, quite apart from serodiagnosis, which are so essential to modern, scientific medical practice. The advantages of immediate access to expert assistance in making darkfield examinations and of direct consultation with the clinical pathologists in the interpretation of their reports of diagnostic tests should not be ignored; in fact, there is urgent need for the establishment of private or hospital laboratory facilities in scores of communities throughout this

country. Such an expansion of diagnostic facilities would greatly elevate the level of medical practice in these areas. Any plan for subventionary assistance might well include provision for assistance in the establishment of such local facilities, rather than the further expansion of state laboratory service. Therefore, the recommendations of the committee embracing this phase of the problem are most timely and reveal a breadth of understanding that is highly commendable. The prompt adoption of these recommendations is essential to the success of the venereal disease control program, which every right-minded physician earnestly desires.

TABLE 2.—*Flocculation and Precipitin Tests* [1]

Serologic Tests Performed and Code Numbers of Participating Laboratories	Sensitivity: Total Syphilitic Patients (200) — Specimens Examined (Excluding Unsatisfactory and Anticomplementary)	Doubtful Reports	Positive Reports	Percentage of Positive Reports	Unsatisfactory [2] and Anticomplementary Specimens	Specificity: Normal Presumably Nonsyphilitic Individuals (100) — Specimens Examined (Excluding Unsatisfactory and Anticomplementary)	Doubtful Reports	False Positive Reports	Percentage of False Positive Reports	Percentage of Negative Reports	Unsatisfactory [2] and Anticomplementary Specimens
Hinton test											
Control [3]	196	4	182	92.9	4	100	1	..	...	100.0	..
14	179	1	145	81.0	21	83	..	..	...	100.0	17
16	196	4	182	92.9	4	100	1	..	...	100.0	..
24	190	5	170	89.5	10	100	1	..	...	100.0	..
32	195	38	91	46.7	5	99	..	..	...	100.0	1
Kahn presumptive test											
Control [4]	194	3	178	91.8	6	100	1	..	...	100.0	..
11	198	6	168	84.8	2	100	..	..	...	100.0	..
21	191	4	139	72.8	9	100	..	..	...	100.0	..
Kahn standard diagnostic test											
Control [4]	193	4	163	84.5	7	100	..	..	...	100.0	..
1	199	8	161	80.9	1	100	3	1	1.0	99.0	..
3	189	40	121	64.0	11	100	..	..	...	100.0	..
4	197	20	142	72.1	3	100	1	..	...	100.0	..
5	191	2	165	86.4	9	87	3	2	2.3	97.7	13
8	189	..	135	71.4	11	95	..	1	1.1	98.9	5
9	198	2	163	82.3	2	99	..	..	...	100.0	1
11	198	23	134	67.7	2	100	..	..	...	100.0	..
14	194	7	153	78.9	6	100	..	..	...	100.0	..
15	195	26	143	73.3	5	93	1	..	...	100.0	7
17	197	10	152	77.2	3	99	..	..	...	100.0	1
18*	197	10	156	79.2	3	99	..	..	...	100.0	1
21	199	28	126	63.3	1	100	..	..	...	100.0	..
22	166	35	73	44.0	34	87	2	..	...	100.0	13
25	172	2	126	73.3	28	99	..	..	...	100.0	1
26	194	15	152	78.4	6	100	1	..	...	100.0	..
29	199	6	161	80.9	1	100	..	..	...	100.0	..
33	197	5	189	95.9	3	99	16	9	9.1	90.9	1
34	188	..	98	52.1	12	100	..	..	...	100.0	..
35	200	5	141	70.5	..	100	1	..	...	100.0	..
36	198	1	182	91.9	2	100	..	4	4.0	96.0	..
37	185	28	140	75.7	15	98	2	..	...	100.0	2
39	193	55	117	60.6	7	100	2	..	...	100.0	..
40	185	43	129	69.7	15	100	2	..	...	100.0	..
41	197	11	149	75.6	3	100	1	..	...	100.0	..
Kline diagnostic test											
Control [5]	199	19	167	83.9	1	100	..	..	...	100.0	..
2	195	43	128	65.6	5	100	5	..	...	100.0	..
4	198	22	155	78.3	2	99	1	1	1.0	99.0	1
10	194	..	176	90.7	6	100	..	..	...	100.0	..
19	192	17	154	80.2	8	100	1	..	...	100.0	..
30	196	2	174	88.8	4	99	..	3	3.0	97.0	1
31	198	21	162	81.8	2	93	2	1	1.1	98.9	7
Kline exclusion test [6]											
Control [5]	199	5	192	96.5	1	100	3	..	...	100.0	..
Kahn-Kline test											
12	197	32	109	55.3	3	100	6	1	1.0	99.0	..
Kline-Young test											
20	181	21	145	80.1	19	99	2	..	...	100.0	1
Meinecke test											
28	198	21	132	66.7	2	100	1	..	...	100.0	..

1. The sensitivity (true positive reactions) of serodiagnostic tests for syphilis (Hinton test, Kahn presumptive test, Kahn standard diagnostic test, Kline diagnostic test, Kline exclusion test, Kahn-Kline test, Kline-Young test and Meinecke test) based on their ability to detect syphilis in blood specimens from 200 patients with secondary and late syphilis; and the specificity (freedom from false positive reactions) of serodiagnostic tests for syphilis based on their ability to exclude syphilis in 100 specimens from normal presumably nonsyphilitic individuals.

2. Owing to hemolysis, breakage, leakage or other causes; includes specimens not received.

3. Performed by William A. Hinton, Boston.

4. Performed by Reuben L. Kahn, Ann Arbor, Mich.

5. Performed by B. S. Kline, Cleveland.

6. Performed as a control for a laboratory that failed to run this test.

* Performed modification of the Kahn standard diagnostic test.

DR. STANLEY H. OSBORN, Hartford, Conn.: This is one place where state health officers are put on the spot, in that we were found not to be as good as we thought we were. State health officers try to secure sufficient funds from state governments to operate a reasonably high quality of service, but occasionally funds do not permit the state health officer to furnish as high a service as he would like. Sometimes lack of quality does creep in and usually the state health officers see the lesser quality in other branches of health work, other than their own. When we were invited to cooperate with the U. S. Public Health Service, it was almost unanimous that we should do so, and the state health officers expected the laboratories to be shown to be giving a high quality service. Much to our surprise, some of them fell below what we had hoped they might show. Again, the dose has had its beneficial results. Two of the men who should be here are not here. Presumably they are home trying to improve the quality of their laboratory service. We are wondering what other things we should aim at in our own departments of health, so that we shall not be exposed before this section as being wofully below what we had hoped we might be. It has taught us that we might also

review the activities of some other divisions or bureaus of our departments, where we think we have reasonably high quality. I am sure that if the U. S. Public Health Service adopts an impartial view of the situation and makes a survey in other activities, as it did in this, it is going to make us look on our own departments with more pride than possibly we are justified in doing today. Those of us who are not in a department of health, but possibly in individual practice, or with individual groups or dispensaries, should also look intimately into their work to see whether perhaps the quality may be improved, before the Public Health Service suggests they should be looked over. It has been a great lesson. Last spring the state health officers met in the city of Washington and there first learned what was coming, and we went home and decided that before we did very many new things we were going to try to improve the quality of the things we were doing.

Clinical Notes, Suggestions and New Instruments

AIR EMBOLISM TO THE SPINAL CORD FOLLOWING ATTEMPTED PNEUMOTHORAX

ABRAHAM WIKLER, M.D.; JUDAH MARMOR, M.D.
AND
ALAN HURST, M.D.
NEW YORK

Air embolism to the spinal cord following attempted pneumothorax has, to our knowledge, never previously been described. We believe, therefore, that this case is unique and worthy of report.

REPORT OF CASE

History.—A. W., a white woman, aged 39, was admitted to the Montefiore Hospital Sept. 23, 1936, with a history of known tuberculosis for the past six months, involving the apex of the left lung. Her complaints on admission were cough, expectoration, and pain in the left shoulder. She was ambulatory, oriented and cooperative; she showed no weakness or limitation of motion of any of her extremities, and the deep reflexes were normal. Sputum examinations were repeatedly positive for tubercle bacilli, and serial roentgenograms of the chest disclosed a progressive fibrocaseous tuberculosis of the left upper lobe.

October 9 an initial left pneumothorax was attempted. The needle was manipulated but no readings could be obtained on the manometer. There was a return of blood through the syringe and the needle was at once withdrawn. Immediately thereafter the patient became pulseless and cyanotic, uttered a peculiar crescendo cry, and did not respond to questions. Her body turned slowly to the right and she groaned incoherently, was incontinent of urine and had a small hemoptysis. The limbs were flaccid, the tendon reflexes in the upper and lower extremities were depressed, and no Babinski or Hoffman sign could be elicited on either side. The eyeballs were deviated upward for a few seconds and then were fixed centrally. The pupils were dilated, regular and equal and reacted well to light. There was a suggestive grasp reflex bilaterally but no sucking reflex. Epinephrine, 5 minims (0.3 cc.), was given hypodermically and the pulse returned, at first slow, later about 90 per minute, regular and of good quality. The respirations gradually increased, and the patient's color improved. After about ten minutes she was able to respond to questions and complained of severe headache, chest pain, nausea, and inability to move her left leg.

When seen the following morning (October 10) the patient was conscious, rational, and oriented in all spheres. She complained of continued weakness of her left lower extremity and of urinary retention. Neurologic examination at this time revealed: 1. Marked weakness and flaccidity of the left lower extremity. 2. Deep reflexes depressed in the left lower extremity; absent abdominals; impaired plantar response on the left, with suggestive left Oppenheim and Gordon signs, and occasional left Babinski sign. 3. Slight impairment of pain and temperature sensibility in the right lower extremity, extending upward to about the eighth dorsal vertebra on the right and involving also the ninth to eleventh dorsal dermatomes on the left (fig. 1). The sensory impairment in the trunk was more marked than in the extremity. Touch was unimpaired. 4. Impairment in vibratory sensibility in the left lower extremity up to the iliac crest, and slight impairment in position sense in the toes of the left foot.

Twenty-four hours later the patient showed evidences of returning motor power in the left lower extremity. This improvement continued rapidly, so that one week after the initial accident the patient was able to get out of bed and walk about, although with a pronounced limp. The urinary retention had cleared up at the end of twenty-four hours, but some slight difficulty in initiating urination persisted.

Complete neurologic check-up eleven days following the accident (October 20) revealed the following: The mental examination gave entirely normal results. There was a slight limp, the left leg being favored. Coordination and skilled acts were normal. There were no abnormal involuntary movements. There was moderate weakness of the left leg as compared to the right. The hamstrings were weaker than the quadriceps; the dorsiflexors of the foot were weaker than the plantar flexors. There was slight hypotonia on the left. No atrophies or fibrillations were noted. The deep reflexes were now increased in both lower extremities but greater on the left than on the right, except for the left ankle jerk, which was slightly decreased. The plantar responses were poor bilaterally, but no pathologic reflexes were elicited except for a questionable left Oppenheim sign. The abdominals were not elicited. The reflexes in the upper extremities were normal.

The sensory observations remained unchanged, except that at this examination the sensory level was several segments higher—sixth dorsal on the right and seventh dorsal on the left. Sensation in the face and upper extremities, including stereognosis, was entirely normal. The cranial nerves were normal. The patient still complained of slight difficulty in initiating urination and defecation.

Subsequent examinations all showed continued and progressive improvement in the patient's neurologic condition.

October 28, nineteen days after the initial incident, the patient still walked with a very slight limp and showed only slight relative weakness of the left leg, although the reflexes were as previously noted. There had been marked regression in the sensory disturbances, the vibratory impairment being demonstrable only in the left ankle and toes, while position sense was normal. The diminution in pain and temperature sensibility was now very slight, but the patient complained of a subjective sensation of "unpleasantness" when the areas of pain and temperature impairment were touched or stroked. There was still slight retardation in initiating urination and defecation.

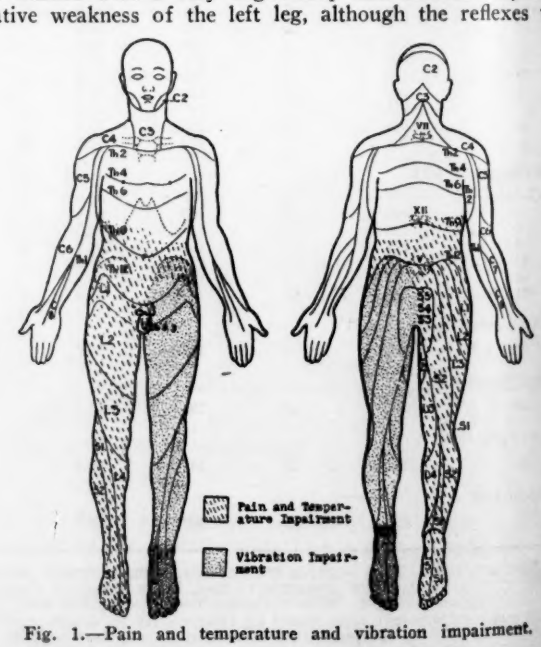


Fig. 1.—Pain and temperature and vibration impairment.

November 6, after twenty-eight days, the gait was perfectly normal. There was very slight relative weakness of the left lower extremity, and the deep reflexes in the left lower extrem-

From the tuberculosis service of Dr. Harry Wessler and the neurologic service of Dr. S. P. Goodhart, Montefiore Hospital.

ity were still slightly more active than on the right. No pathologic reflexes could be elicited, but the abdominals were still absent. Vibratory sensibility was now normal, but very slight pain and temperature impairment was still present, especially in the area of the sixth to ninth dorsal segments on the right. Dysesthesia was still present but was less marked.

November 25, forty-five days after the incident, muscle power was equal in the two legs, but the deep reflexes on the

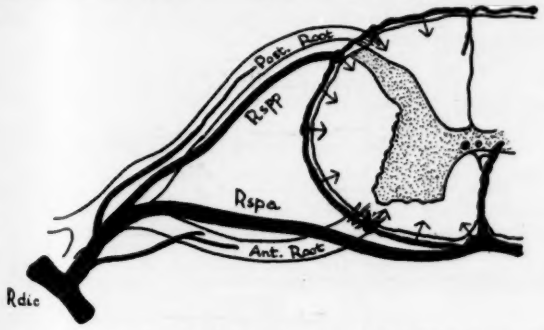


Fig. 2.—Arteries of a spinal cord segment (modified from Oppenheim: Textbook of Nervous Diseases for Physicians and Students): *Rdic*, dorsal branch of the intercostal artery; *Rspa*, anterior spinal branch; *Rspp*, posterior spinal branch.

left were still slightly more active than on the right. The abdominals were not elicited. Dysesthesia was no longer present, but slight pain and temperature impairment was still evident over the sixth to ninth dorsal segments on the right side.

At the time of writing, ten weeks after the accident, there are no abnormal neurologic signs present except for the absent abdominals, and slight hyperreflexia in the left lower extremity.

Laboratory Examinations.—Lumbar puncture October 14, five days after the accident, revealed clear, colorless fluid, with no cells, and a negative globulin reaction (Pandy). The initial pressure was 80 mm. of water, and the final pressure 40 mm., after removal of 10 cc. of fluid. There was no block on jugular compression or abdominal pressure. Total proteins were 34.2 mg. per hundred cubic centimeters. The gum mastic curve showed all zeros. Roentgenograms of the spine were negative. Blood counts, blood chemistry, blood platelet count, bleeding and coagulation times were all normal. The blood and spinal fluid Wassermann reactions were negative. Urinalyses were normal. The gastric analysis revealed an achlorhydria.

Summary.—In the course of an attempted pneumothorax the patient suddenly went into shock, with loss of consciousness, incontinence, and tonic convulsive movements. On recovering consciousness ten minutes later, she complained of inability to move the left leg. Examination revealed a flaccid paresis of the left lower extremity with pyramidal tract and posterior column disturbances in that extremity, together with spinothalamic impairment in the right lower extremity extending upward to about the eighth thoracic dermatome. There was urinary retention for twenty-four hours. In the course of the next few weeks, recovery took place rapidly and ten weeks after the accident, absent abdominals and slight hyperreflexia in the left lower extremity were the only residual neurologic signs.

COMMENT

The sudden onset of transient shock, unconsciousness and convulsions during an attempted pneumothorax, with puncture of a pulmonary vessel, point indubitably to the occurrence of a cerebral air embolism. The simultaneous onset of paresis of the left lower extremity with level sensory manifestations justifies the conclusion that there was coincidental embolization to the vessels of the spinal cord. The rapid improvement in the neurologic signs is confirmatory evidence in favor of this diagnosis.

The precise localization of the vessels involved and the course taken by the emboli are difficult to state with certainty in the light of our still indefinite knowledge concerning the exact vascular supply of the spinal cord. It would seem, in view of the preponderant pyramidal tract and posterior column signs on the left and the spinothalamic signs on the right, that we are dealing with a lesion in the distribution of the posterolateral vessels on the left side, at the level of the midthoracic cord. The most likely pathway that the embolus or emboli would have to take to involve these vessels would seem to be from the pulmonary veins into the left side of the heart, thence into the aorta, and out along one of the intercostal arteries on the left side to terminate in branches which communicate with the left posterior spinal artery, in the midthoracic region (fig. 2).

In view of the association of the spinal cord lesion with definite, albeit transient, evidences of coincidental cerebral embolization, it is of interest to note the work of Herrmann and Vial,[1] who discovered, in experimental embolization of the internal carotid artery in dogs, that those which survived showed diminished or absent reflexes in the fore limbs, with increased reflexes in the hind limbs. Suspecting that emboli were reaching the spinal cord, they injected an aqueous suspension of lycopodium powder into the internal carotid artery and on histologic examination found grains of lycopodium in the vessels of the cervical and upper thoracic cord in thirteen of eighteen cases, the emboli having evidently reached the cord by way of the circle of Willis, down the vertebral arteries, into the anterior and posterior spinal vessels. Whether such a mechanism may have operated in our case we are not prepared to state, but it seems less likely than the pathway we have suggested (that is, by way of the intercostal artery).

So far as we have been able to determine, this is the first reported case of air embolism to the spinal cord. Embolization of any kind to the spinal cord is comparatively rare. Most of the reported cases have been in association with subacute bacterial endocarditis,[2] although a number of cases have also been described of embolic echinococcosis of the arteries of the spinal cord.[3]

INTESTINAL OBSTRUCTION DUE TO INGESTION OF DRIED PEACH

FRED L. ANDREWS, M.D., AND THOMAS F. WALKER, M.D.
GREAT FALLS, MONT.

A woman, aged 46, was brought to the hospital from the country about 15 miles distant, complaining of pain in the upper part of the abdomen, with nausea and vomiting. The family history was negative. The patient had had the ordinary diseases of childhood. She had three children living and well. Cholecystectomy and appendectomy had been performed in

At right, peach removed from intestine. At left, dried peach, shown for comparison.

March 1927. A Colles fracture of the right wrist was sustained in June 1926. All the teeth were extracted several years ago, but no plates were worn.

When first seen at 6 a. m. she was suffering from severe abdominal pain and thought she had "ptomaine poisoning." She had eaten sardines at noon the day before, also the dried half of a peach which, when moistened by the saliva of the mouth, had slipped down her throat. About 7 p. m. the pain began

1. Herrmann, H., and Vial, J.: Compt. rend. Soc. de biol. **116**: 523, 1934; **116**: 1223, 1934.
2. Harrington, A. W.: Glasgow M. J. **103**: 28 (Jan.) 1925.
3. Rizzi, I.: Riv. di pat. nerv. **45**: 397 (March-April) 1935.

in the upper region of the abdomen, gradually becoming more severe. An enema was taken about midnight with no relief.

In the hospital more enemas were given, without relief. One-fourth grain (0.016 Gm.) of morphine was given hypodermically. The vomiting, which was only occasional at first and consisted of fluids which she had taken, became more frequent, projectile in type and fecal in character. The temperature was 99 F., pulse 136 and leukocyte count 25,000 (polymorphonuclears 94 per cent, lymphocytes 6 per cent). Operative procedure was then decided on.

Under spinal anesthesia a low, median line incision was made. The abdominal cavity was filled with a clear, straw colored fluid, and exploration was begun in the upper part of the abdomen. A sausage shaped mass was palpated in the transumbilical line on the left side in the small intestine, but no attempt was made to determine the distance of the obstruction from the stomach. A longitudinal incision 3 inches in length was made in the intestine and a half peach was removed. The peach showed no signs of digestion and was swollen sufficiently to cause a bulging of the intestine and complete blocking. Closure was made with three layers of gastro-intestinal suture.

The patient was put in Fowler's position. The temperature was 99, pulse 90 and respiration 26. Proctoclysis of 5 per cent dextrose was immediately started. There was no apparent surgical shock. No vomiting occurred after operation and convalescence was uninterrupted until the afternoon of the fourth day, when some saliva ran into the trachea while the patient was asleep, causing a fit of violent coughing, awakening her. During this seizure she felt something "pop" and almost immediately sensed that something had happened.

Under nitrous oxide oxygen anesthesia the wound was opened. The peritoneum and muscle fascia had been torn apart, and bile and fecal material welled into the wound. That portion of the intestine previously operated on was brought into the wound, revealing an opening about one-fourth inch long in the previous incision. This loop of bowel was sutured into the wound with rubber tube drains inserted in both directions; four cigaret drains were also placed in the abdomen. The patient died at 4:30 the following morning. Permission for postmortem was refused.

210 Medical Arts Building.

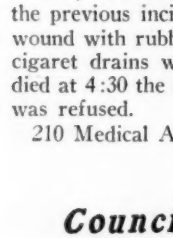
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

BECK-LEE DE LUXE DUO-THERM, MODEL #1207 ACCEPTABLE

Manufacturer: The Beck-Lee Corporation, Chicago.

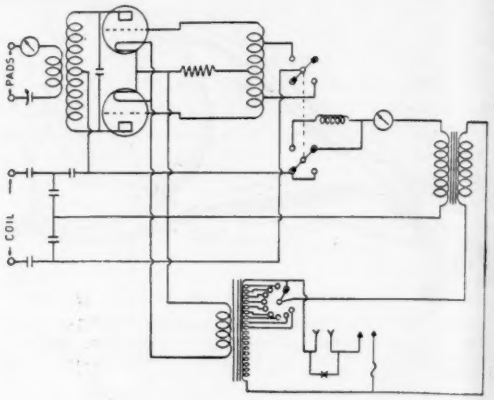
The Beck-Lee De Luxe Duo-Therm, Model #1207, is intended for medical and surgical use. Pads, cuff electrodes and inductance coil attachments are provided for medical applications. Surgical accessories for cutting, desiccation, fulguration and coagulation come as part of the equipment. The machine is housed in a walnut cabinet 21 inches wide, 18 inches deep and 43 inches high. The drawer in the lower part of the cabinet provides storage space for items such as line cord, pads, cable and other accessories. The machine is guaranteed for one year.



Beck-Lee De Luxe Duo-Therm.

Self-rectifying tubes are used in the circuit protected by an input meter, which has on the dial a position to indicate when the tubes are overloaded. The tubes are also protected by a fuse cutout. The wavelength is 15-16 meters for pad and cuff applications and 25-27 meters for the coil technic. The input power is approximately 700 watts under normal operating conditions. Although no method of measuring output power has been adopted officially, the firm rated the output power at 375 watts as determined by the excitation of a lamp load read by a photometer. The temperature rise of the transformer at normal load after a two hour run meets the requirements of the Council.

The firm was asked to present evidence to verify its claims as to the heating ability of the unit. In accordance with the regular procedure of the Council in considering such a device, twelve tests were submitted, six in which the coil technic was used and six with double cuffs. Two vigorous adult male medical students ranging in weight from 150 to 180 pounds were the subjects. A trocar placed in a hard rubber cannula was inserted into the thigh. It was introduced at right angles



Schematic diagram of circuit.

to the thigh and straight down into the depth of the muscular tissue until it was at an approximate depth of 2 inches or until the femur was encountered. The trocar was removed, the rubber cannula being left in situ. Temperature measurements were then taken by means of thermocouples of the hypodermic needle type and introduced through the cannula. The constant junction was immersed in ice enclosed in a quart vacuum bottle. The electromotive force due to the difference in temperature of the junctions was read in millivolts from a Leeds and Northrup portable potentiometer. The thermocouple was calibrated in degrees Fahrenheit against a Bureau of Standards certified thermometer. Initial temperatures were taken and then each student was subjected to a twenty minute application of maximum current intensity consistent with skin comfort. At the end of this period, temperatures were again recorded until the temperatures began to drop. The highest temperature attained was recorded as final temperature in each instance. Oral temperatures were also recorded.

The first six experiments were made with the cuff technic. Two cuffs measuring 3 by 23 inches were wrapped round the thigh equidistant from the cannula, about 7 inches center to center, with one-half inch felt spacing. The next six tests were made with the inductance coil technic. Here three turns of the 12 foot 6 inch cable, diameter 1 inch, were wound round the thigh with 1 inch thickness of bath toweling as spacing. There was a space of 2 inches between adjacent turns of the coil. The averages of six tests with the cuff technic and of six tests with the coil technic are given here.

1. *Average Temperatures of Six Observations, Cuff Technic*

Deep Muscle		Oral	
Initial	Final	Initial	Final
100.4	106.5	98.7	99.3

2. *Average Temperatures of Six Observations, Coil Technic*

Initial	Final	Initial	Final
99.5	107.2	98.3	98.7

The unit was tried out in a clinic acceptable to the Council on Physical Therapy. The clinical results were satisfactory with both technics. The cutting current was also found to be suitable for surgical needs. No claims were made for use of the apparatus in fever therapy. Burns may be produced but can be avoided by the use of ordinary precautions.

In view of the favorable report based on the data obtained by the Council's investigator, using both cuff and coil technics, the Council voted to include the Beck-Lee De Luxe Duo-Therm Model #1207, in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

DIGITALIS (See New and Nonofficial Remedies, 1937, p. 180).

The following dosage forms have been accepted:

Capsules Digitalis Leaves-Sharp & Dohme, 1½ grains: Each capsule contains one cat unit.

Prepared by Sharp & Dohme, Inc., Philadelphia and Baltimore.

Tablets Digitalis-Squibb, ½ cat unit: Each tablet represents ½ cat unit (approximately ¾ grain).

Prepared by E. R. Squibb & Sons, New York.

Capsules Powdered Digitalis-Squibb, 1½ grains: Each capsule represents 1.0-1.1 U. S. P. XI units.

Prepared by E. R. Squibb & Sons, New York.

PONTOCAINE HYDROCHLORIDE. — *p*-butylaminobenzoyl-*di*-methylaminoethanol hydrochloride. — $C_4H_9NH.C_6H_4COO.C_2H_4N(CH_3)_2.HCl$. The base of pontocaine hydrochloride belongs to the procaine type. It differs from procaine base in that one of the (amino) hydrogens of the aminobenzoate group is replaced by a butyl group, and the two ethyl groups of procaine are replaced by two methyl groups in pontocaine.

Actions and Uses.—Pontocaine hydrochloride is a local anesthetic with actions similar to those of procaine hydrochloride, but it is effective when applied to mucous membranes in lower concentrations. It is used for surface anesthesia in the eye, nose and throat, and in spinal anesthesia in which the anesthesia is prolonged.

Dosage.—Solution of pontocaine hydrochloride 0.5 per cent is used in the eye; a 2 per cent solution is applied to the nose and throat. The 1 per cent solution is injected for spinal anesthesia, for which purpose the dose is from 1 to 2 cc. (containing from 10 to 20 mg. of the salt).

Manufactured by the Winthrop Chemical Co., New York, N. Y. U. S. patent 1,889,645 (Nov. 29, 1932; expires 1949). U. S. trademark 282,418.

Ampules Pontocaine Hydrochloride Solution 1 per cent, 2 cc. size: Each 2 cc. of solution contains pontocaine hydrochloride 0.02 Gm., sodium chloride 0.0133 Gm., and acetone bisulfite 0.004 Gm.

Pontocaine Hydrochloride Solution, 0.5 per cent: Supplied in bottles of one-half fluidounce containing 1⅛ grains of pontocaine hydrochloride (0.5 Gm. per hundred cubic centimeters) and 9/10 grain of chlorobutanol (0.4 Gm. per hundred cubic centimeters).

Pontocaine Hydrochloride Solution, 2 per cent: Supplied in bottles of one and four fluidounces containing in each fluidounce 9 grains of pontocaine hydrochloride (2 Gm. per hundred cubic centimeters) and 1⅘ grains of chlorobutanol (0.4 Gm. per hundred cubic centimeters). The solution is tinted with methylene blue to prevent accidental use for injection.

Pontocaine hydrochloride occurs as a fine, white, crystalline, odorless powder; when applied to the tongue, it possess a slightly bitter taste, followed by a sense of numbness; permanent in the air at ordinary temperature; very soluble in water; soluble in alcohol; insoluble in benzene and ether. Its aqueous solution (1 in 100) is neutral to litmus. Pontocaine hydrochloride melts at 147 to 150 C. From aqueous solutions, alkali carbonates and hydroxides precipitate the base as a colorless oil which solidifies when chilled and melts at 41 to 43 C. Dissolve about 0.1 Gm. of pontocaine hydrochloride in 5 cc. of water, add 1 cc. diluted nitric acid and 5 cc. of silver nitrate solution: a white precipitate results; filter and wash; the precipitate is soluble in ammonia water.

Dissolve about 0.2 Gm. of pontocaine hydrochloride in 20 cc. of water; divide into two portions; to one portion add 0.2 cc. of diluted hydrochloric acid, 0.2 cc. of a 10 per cent solution of sodium nitrite and gradually add to a solution of 0.2 Gm. of betanaphthol in 10 cc. of a 10 per cent sodium hydroxide solution: a white precipitate occurs *(distinction from the anesthetics responding to the diazo reaction)*; saturate the other portion with hydrogen sulfide: no coloration or precipitation results *(salts of heavy metals)*. Dissolve about 0.1 Gm. of pontocaine hydrochloride in 1 cc. of sulfuric acid: the solution is colorless *(readily carbonizable substances)*.

Dry about 0.5 Gm. of pontocaine hydrochloride, accurately weighed, at 100 C, for six hours: the loss in weight does not exceed 1.0 per cent. Incinerate about 0.5 Gm. of pontocaine hydrochloride, accurately weighed: the residue is not more than 0.1 per cent. Transfer about 0.3 Gm. of pontocaine hydrochloride, accurately weighed, to a 500 cc. Kjeldahl flask and determine the nitrogen content according to the official method described in Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists, third edition, page 20, chapter 2, paragraph 22: the percentage of nitrogen corresponds to not less than 9.1 nor more than 9.5 when calculated to the dried substance. Transfer about 0.3 Gm. of pontocaine hydrochloride, accurately weighed, to a suitable Squibb separatory funnel, add 25 cc. of water, followed by the addition of 2 cc. of sodium hydroxide solution, extract with seven successive portions of ether, using 35 cc., 30 cc., 25 cc., 20 cc., 15 cc., 10 cc. and 10 cc., respectively; wash the combined ethereal solution with 15 cc. of water, filter through a pledget of cotton, evaporate to a thick oil in a stream of warm air, and dry to constant weight over sulfuric acid in a partially exhausted desiccator: the weight of *p*-butylaminobenzoyl-dimethylaminoethanol obtained corresponds to not less than 87.3 per cent nor more than 88.3 per cent, when calculated to the dried substance. Transfer the alkaline aqueous portion from the immiscible solvent extraction to a 400 cc. beaker, and place on the steam-bath for 3 hours, add 100 cc. of water, followed by the addition of 10 cc. of nitric acid and 25 cc. of silver nitrate solution, subsequently boil, with continuous stirring, and allow to cool in a dark place. Collect the precipitate of silver chloride on a Gooch crucible, wash with diluted nitric acid and water, followed by alcohol and ether; finally dry to constant weight at 105 C.: the amount of hydrogen chloride calculated from the silver chloride found corresponds to not less than 12.0 per cent, nor more than 12.3 per cent when calculated to the dried substance.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

LARSEN'S "FRESHLIKE" STRAINED CEREAL

Manufacturer.—The Larsen Company, Green Bay, Wis.

Description.—A puréed cereal preparation made from processed whole wheat, whole milk, barley, soy beans, wheat germ and salt, requiring only warming for serving and specially intended for infant feeding.

Manufacture.—Formula proportions of the dry ingredients are mixed in stainless steel kettles, whole milk is added and the mixture is mixed and heated until the starch grains swell and disintegrate. The mixture is strained twice, mechanically filled into enamel-lined cans and sealed. All of these steps are performed under vacuum. Cans are processed at 116 C. for one hour and cooled in water.

Analysis (submitted by manufacturer). — Moisture 80.5%, total solids 19.5%, ash 1.2%, fat (ether extract) 1.8%, protein (N × 6.25) 5.0%, crude fiber 0.09%, carbohydrates other than crude fiber (by difference) 11.4%, calcium (Ca) 0.106%, phosphorus (P) 0.330%, iron (Fe) 0.0013%; ratio phosphorus to calcium 3.11; ratio carbohydrate to protein 2.28.

Calories.—0.82 per gram; 23 per ounce.

Vitamins.—The method of preparation appears to be adequate to retain in high degree the vitamins normally present in the ingredients.

RANNEY'S FINEST BRAND STRAINED UNSEASONED PRODUCTS (PEAS, GREEN BEANS, CARROTS, BEETS, SPINACH, CELERY, TOMATOES, APPLES, PRUNES, APRICOTS, AND VEGETABLES WITH CEREAL AND BEEF BROTH)

Distributor.—Ranney-Davis Mercantile Company, Arkansas City, Kan.

Packer.—The Larsen Company, Green Bay, Wis.

Description. — Respectively strained peas, spinach, carrots, beets, green beans, celery, tomatoes, prunes, apples, apricots and vegetables with cereal and beef broth; prepared by efficient methods for retention in high degree of the natural mineral and vitamin values. No added sugar or salt. These products are the same as the respective accepted Larsen's vegetables and fruits (THE JOURNAL, Aug. 26, 1933, p. 675; Aug. 12, 1933, p. 525; Aug. 19, 1933, p. 605; July 8, 1933, p. 125; July 29, 1933, p. 366; Sept. 2, 1933, p. 779; July 1, 1933, p. 35; July 22, 1933, p. 282; Aug. 10, 1935, p. 437; July 4, 1936, p. 38; July 22, 1933, p. 283).

SCHAAF'S "FAVORED FOR FLAVOR" EVAPORATED MILK

Distributor.—Frank Schaaf Company, Milwaukee.

Packer.—Page Milk Company, Merrill, Wis.

Description. — Unsweetened, sterilized, evaporated milk, the same as Page Brand Evaporated Milk (THE JOURNAL, May 30, 1931, p. 1872).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 7, 1937

ERYTHROCYTES IN PERNICIOUS ANEMIA

Notwithstanding the important advances that have been made during the past few years in the treatment of pernicious anemia and in the partial elucidation of the chemical nature of the material effective in the treatment of this disease, the fundamental cause of the anemia remains unsolved. Whipple [1] believes that the underlying cause may be a lack of material needed for the formation of the stroma of erythrocytes and therefore that the cells formed are of subnormal structural strength. Some insight into this question may be acquired when the chemical constitution and the mode of action of the antianemic principle are determined. Another approach to the problem, however, is the study of the chemical composition and the physical structure of erythrocytes from patients with typical pernicious anemia. Possibly the disease is associated with changes in the red cell or, indeed, the anemia may be a result of chemical abnormalities of the cell itself.

A series of studies have been conducted at the Research Laboratory of the Children's Fund of Michigan [2] to obtain accurate information regarding the chemical composition of erythrocytes from normal subjects and from patients with various types of hematologic disorders. The results recently reported on erythrocytes from patients with pernicious anemia, both in relapse and in remission induced by liver extract, are particularly significant. During relapse some increases in the cation and anion content of the cells were observed, which were due chiefly to the presence of increased amounts of potassium and of hemoglobin. The most striking changes from normal, however, were those in the lipid components of the erythrocytes. There were significant increases in the amounts of cholesterol esters and decreases in the amounts of phospholipid and free cholesterol. Induced remission of the disease by liver extract therapy was accompanied by a prompt return of the values to normal.

An interpretation of these data is difficult at the present time. There is some evidence [3] that physiologic activity in a tissue or organ is associated with an increased content of phospholipid and of free cholesterol, whereas lowered activity, degeneration and retrogression are accompanied by a decreased content of these lipids and an increase in the amount of neutral fat and cholesterol esters present. If this general relationship applies to erythrocytes from patients with pernicious anemia, the foregoing results indicate that these cells are in a state of lowered activity or that they are degenerating and retrogressing.

Further work on this important problem is needed. As stated by the Michigan workers, chemical analyses of the isolated stroma of erythrocytes may yield further and more revealing information.

1. Whipple, G. H.: Hemoglobin Regeneration as Influenced by Diet and Other Factors, J. A. M. A. **104**: 791 (March) 1935.

2. Williams, H. H.; Erickson, Betty N.; Bernstein, Samuel; Hummel, Frances C., and Macy, Icie G.: The Lipid and Mineral Distribution of the Serum and Erythrocytes in Pernicious Anemia, J. Biol. Chem. **118**: 599 (May) 1937.

3. Bloor, W. R., and Snider, Ruth H.: Phospholipid Content and Activity in Muscle, J. Biol. Chem. **107**: 459 (Nov.) 1934. Boyd, E. M.: The Lipid Content of the Jelly of Wharton, J. Biol. Chem. **111**: 667 (Nov.) 1935.

THE NATIONAL CANCER INSTITUTE

A bill [1] establishing a National Cancer Institute as a division of the United States Public Health Service has passed both houses of Congress. It will become a law when signed by the President. The bill creates a National Cancer Advisory Council and enlarges the functions and resources of the Public Health Service with respect to the study and treatment of cancer. To house the proposed institute, the Secretary of the Treasury is empowered to acquire suitable land in or near the District of Columbia and the appropriation of $750,000 for the erection and equipment of buildings is authorized. An annual appropriation of $700,000 is authorized for maintenance and operation. The Secretary of the Treasury is authorized, too, to accept gifts and bequests to further the work of the institute. All this, moreover, is not to replace but to supplement such authority and appropriations relating to the study of the prevention, diagnosis and treatment of cancer as the Public Health Service and other agencies of the United States already have. The responsibility for the operation of the institute is divided between the National Advisory Cancer Council, the Surgeon General of the Public Health Service and the Secretary of the Treasury.

The National Advisory Cancer Council is to consist of the Surgeon General, ex officio, as chairman, and six members appointed by him with the approval of the Secretary of the Treasury from leading medical and scientific authorities outstanding in the study, diagnosis or treatment of cancer in the United States. Each appointive member is to be paid at the rate of $25 a

1. S. 2067.

day for such time as he devotes to his official duties. The council is to certify to the Surgeon General, for investigation, experiment and study, programs relating to the cause, prevention, diagnosis and treatment of cancer deemed by it worthy of such action. It is to collect and, with the approval of the Surgeon General, make available to physicians and other scientists and to the public the results of studies throughout the world pertaining to cancer. The council is to examine applications for grants-in-aid for research projects relating to cancer and to certify to the Surgeon General, who is authorized to make such grants, such projects as show promise of worth-while results. Tenders to the Secretary of the Treasury of gifts that are limited by conditions named by the would be donors are to be appraised by the council, which is to certify to the secretary for acceptance such gifts as the council believes will further the purposes of the act.

The Surgeon General of the Public Health Service is authorized to provide facilities where training and instruction concerning cancer will be given to qualified persons, and provision is made for paying such persons while they are being so educated and trained. In addition, research fellowships may be established by the Surgeon General for investigators from any part of the world, and the assistance of experts from the United States or elsewhere in matters pertaining to cancer may be employed. Commissioned officers in the Public Health Service may be appointed in such numbers as may be necessary to aid in carrying out the provisions of the act. The Surgeon General may purchase radium and make it available for purposes of the act, and he may, subject to such conditions as the Secretary of the Treasury shall prescribe, lend radium to institutions for the study of the cause, prevention and method of diagnosis or treatment of cancer or solely for the treatment of cancer. Grants-in-aid may be made by the Surgeon General to universities, hospitals, laboratories and other institutions, or to individuals, for research projects relating to cancer certified by the National Cancer Advisory Council as worthy of such grants.

The Secretary of the Treasury is authorized to accept any unconditional gifts or bequests to be used for furthering the purposes of the act and to accept any conditional gifts for that purpose if acceptance is recommended by the Surgeon General and the council.

The act will become effective thirty days after its approval by the President, but in accordance with congressional practice it carries no appropriation and may have to wait until an appropriation is made before it becomes operative.

It is to be hoped that the use of the abundant funds proposed in this act, following so closely on the gift of $10,000,000 by a private donor to Yale University for cancer research, will hasten the day when the cause of cancer is known and prevention and cure are available.

INFLUENCE OF MINERAL CONSTITUENTS OF BONE ON OSSIFICATION

Although there has been much research on the problem of ossification and its characteristic features, some of the most important aspects of this process remain obscure. Chief among these are the mechanism by which calcium is deposited in the bone matrix and the nature of the immediate stimulus that leads to the formation of bone in a given location. The suggestions offered to answer some of these perplexing problems of ossification have in general taken one of two directions. One theory of ossification may be termed humoral or chemical, and Leriche and Policard,[1] who have championed this hypothesis, postulate "a local calcific surcharge as the determinant of osteogenesis in a suitable fibrous medium." These authors emphasize the rarefaction of bone at the extremities of the fragments that occurs after a fracture. They believe that this liberates calcium in the region and leads to a local excess of calcium, this being an important factor in the union of fractures. The other theory of ossification considers that the process is cellular, or vital, the bone being formed as a product of specific cells (osteoblasts) which, under proper conditions, have the capacity of laying down bone. The two theories agree that bone deposition can occur only in the presence of an adequate supply of calcium and of other bone constituents. The divergence of the two theories lies primarily in the question whether the stimulus for ossification is of chemical (humoral) or cellular (vital) origin.

The experimental approach to the evaluation of these two theories of ossification is obviously easier in the case of the chemical hypothesis than in the study of the cellular or vital theory. Chemical alterations in the environment of the bone structure are much simpler to secure experimentally than are conditions that are optimal for the differentiation of primitive connective tissue into osteoblasts. As a consequence a number of reports have been made regarding the effect of experimentally produced local salt depots on the process of ossification. The evidence has been for the most part inconclusive because of the inability of investigators to control accurately all the variables, such as the influence exerted by the operative procedure necessary for the introduction of the salt. Also it is frequently observed that repair occurs as rapidly in the control as in the experimental fracture.

Recently Bisgard [2] has described experiments designed to eliminate controversial technic and to assess accurately the influence of an excessive local supply of calcium on ossification. At the same time a study was made to determine whether bone, in the form of partially viable bone, boiled bone or bone ash, might alter the repair process. Autogenous transplants of certain tissues were made to the anterior chamber of each eye of a large number of rabbits and several dogs. In most instances

1. Leriche, R., and Policard, A.: The Normal and Pathological Physiology of Bone, translated by Sherwood Moore and J. A. Key, St. Louis, C. V. Mosby Company, 1928.
2. Bisgard, J. D.: Ossification, Arch. Surg. **33**: 926 (Dec.) 1936.

the grafts promptly became attached to the iris, from which they became vascularized. After this had occurred, aqueous suspensions of either bone salts or bone ash were injected into the anterior chamber of approximately half the eyes. The transplants in the eyes in which salts were not injected served as controls. After varying periods the animals were killed and the grafts were recovered and studied microscopically. The synthetic salts of bone, calcium carbonate, calcium phosphate and magnesium phosphate had no influence on osteogenesis or ossification. In great concentration and in the presence of tissue not in itself osteogenic but regarded as ossifiable, these salts failed to give rise to the formation of bone and in the presence of osteogenic tissue they did not appear to alter the normal process of ossification. On the other hand, bone, regardless of its viability, had a favorable influence on ossification. This was true also of bone ash. The conclusion is drawn, therefore, that bone ash possesses some factor favorable to ossification that is not present in the artificial salt mixture. It may be inferred from these observations that calcium as it exists in bone may be present in a physiochemical or structural form more suitable for use in the process of ossification.

The experiments of Bisgard are of further interest when viewed in the light of recent evidence indicating that the breaking strength of bones appears to be more closely correlated with organic pattern, as reflected in the size of the bone, than with the proportion of inorganic salts.[3] It seems possible that observations of this type, supplemented by other data, may serve to bring into closer harmony the two principal theories of ossification and to lay equal emphasis on the importance of each. The process may require both a proper chemical stimulus in the form of a correct balance and concentration of the inorganic salts of bone and the vital activity of the osteoblasts for laying down the correct organic pattern into which these salts may be deposited.

FEDERAL REGIMENTATION OF PHYSICIANS AND HOSPITALS

Senator J. Hamilton Lewis of Illinois introduced in the Senate, July 28, a joint resolution[1] "To provide medical aid for the needy and the stricken with illness who are unable because of poverty to provide treatment and hospitalization; also to establish all licensed medical practitioners as civil officers of National Government." The resolution, which was referred to the Committee on Finance, would in effect relieve the states of all responsibility and expense for the medical and hospital care of the indigent sick and injured within their respective borders and would bring the medical profession and all hospitals under federal control so far as might be necessary for the purposes of medical and hospital relief. Senator Lewis proposes to organize the medical profession and the hospitals of the United States to care for and treat, at the expense of the federal government and in accordance with rules and regulations promulgated by the Social Security Board, all infirm, sick and destitute persons in need of care and treatment and unable to provide it. The resolution outlines the framework of a federal civilian medical corps such as was described by Senator Lewis in his recent address[2] before the House of Delegates of the American Medical Association at Atlantic City.

Senator Lewis's resolution proposes that for the purposes therein set forth every physician who practices medicine in the United States be a civil officer of the United States government. In effect, every such physician is to be drafted into a federal medical relief service whether he desires it or not, without regard to his citizenship, age, infirmity, education, training or experience. His term of office is to be for life, regardless of good or bad behavior, for no provision is made for suspension or removal from office for any cause, or for resignation. The utmost freedom in choice of physicians is proposed; any person in need of medical treatment and unable to pay for it is to be empowered, if the resolution is enacted, to demand treatment by any physician, and the physician is to be bound to respond. A physician having under treatment an impoverished patient in need of hospital care would have authority, in event of the enactment of the resolution, to order his patient's hospitalization by any hospital, and a hospital, on receipt of such an order, would have to receive and care for the patient in a manner best adapted to effect his recovery, so far as the facilities of the hospital would permit.

Bills for medical and hospital services would be sent to the Social Security Board and would be paid if the board found them reasonable and just. The resolution is silent as to the payment of bills in cases in which the physician or the hospital on the one hand and the Social Security Board on the other cannot agree as to the reasonableness and justice of the amount charged.

Any physician and any hospital official or employee who refuses to render the service required of him is to be liable, if this resolution becomes a law, to a fine of not more than $1,000 or to imprisonment for not more than three months, or both. Similar penalties are proposed for any physician or hospital official or employee making exorbitant charges, for any physician or hospital charging a patient anything in addition to the amount charged the federal government for the same services, and for any person who, in order to obtain medical and hospital services at the government's expense, falsely represents that he is destitute and unable to pay for medical treatment.

The resolution proposes that the Social Security Board be authorized to make such rules and regulations as are necessary to carry out the terms of the resolution. It is silent as to the official organization necessary to

3. Clarke, Miriam F.; Bassin, A. L., and Smith, A. H.: Am. J. Physiol. **115**: 556 (May) 1936.

1. S. J. Res. 188.

2. Address of Hon. J. Hamilton Lewis, J. A. M. A. **108**: 2221 (June 26) 1937.

provide proper supervision and control over physicians, hospitals and patients coming within the terms of the resolution. It makes no provision for the services of dentists or of nurses or for medical and surgical supplies, nor does it provide for any of the other needs of the destitute sick. The resolution contains no indication of the estimated cost of the proposed service and is silent as to the taxes to be levied by the federal government to raise the money necessary to pay that cost.

This joint resolution must pass the Senate and the House of Representatives and be approved by the President before it becomes a law. Introduced at this late date, there is little likelihood that it will be enacted before the adjournment of the present session. Apparently it has been introduced for the purpose of getting the views of its author before Congress and the public.

Current Comment

SERODIAGNOSTIC TESTS FOR SYPHILIS IN STATE LABORATORIES

Elsewhere in this issue (page 425) appears the Report of the Committee on Evaluation of Serodiagnostic Tests for Syphilis. It is a comparative study of efficiency of the performance of serodiagnostic tests for syphilis in thirty-nine state laboratories. Four private laboratories were used as controls. A study of the tables and graphs obtained from the sixty-nine serologic performances on each specimen of blood submitted revealed the fact that some of the state laboratories are qualified neither to perform efficient diagnostic service nor to inaugurate any system of licensure involving approval of local laboratories within their respective states. In many states, however, the efficiency of the performance of the tests was maintained at a high level. It was also evident that the routine employment of a single serodiagnostic test, even though performed by competent workers, is occasionally unreliable. The recommendations of the committee should receive immediate study. It was advised that provision be made for adequate training of state and local laboratory technicians in the laboratories of the originators of the methods employed and that in the future only thoroughly competent technical personnel be employed. A system of periodic inspection of state laboratories by thoroughly trained serologists of the United States Public Health Service should be devised and made available. The facilities for the special study of serologic methods in the Venereal Disease Research Laboratory of the United States Public Health Service at Staten Island should be utilized to a greater extent. Periodic comparative examination of the performance of serodiagnostic tests is desirable. Finally, the committee advised that full advantage be taken of existing local laboratory facilities and that provisions be made to approve and subsidize qualified local laboratories for the performance of diagnostic services in the control of syphilis.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Society News.—The Northwestern Division of the Medical Association of the State of Alabama was addressed recently in Decatur by Dr. Barney Brooks, Nashville, Tenn., on partial gastrectomy; Hon. John J. Peach, Decatur, "Medical Evidence in Court"; Dr. Thomas L. Bennett Jr., Florence, "Management of Occiput Posterior"; Dr. Frank H. Clements, Birmingham, eye disease, and Dr. Charles E. Abbott, Tuscaloosa, "Urinary Infections in Infancy and Childhood."

ARKANSAS

Personal.—Dr. Benjamin C. Middleton, Texarkana, has been appointed health officer of Miller County.——Dr. Fount Richardson, Fayetteville, has been appointed physician to the University of Arkansas.

Poliomyelitis in Pulaski County.—Nine cases of poliomyelitis were reported to be under treatment at the Little Rock City Hospital and four deaths had occurred, newspapers reported July 15. In Pulaski County, outside of Little Rock, six patients were still under quarantine July 16 and three had recovered with partial paralysis.

Society News.—At a meeting of the Tri-County Clinical Society, Prescott, June 24, the speakers were Drs. John Harry Hayes, Little Rock, on diagnosis of hyperthyroidism; Bryce Cummins, Little Rock, anesthesia; Robert Paul Hughes, Prescott, acute conditions of the abdomen, and Francis W. Regnier, Prescott, metastatic sarcoma of the lung.——The Randolph-Lawrence County Medical Society was addressed at Smithville, June 8, by Drs. Henry B. Hull, Mammoth Springs, on dysentery; Cleo C. Ball, Ravenden, rheumatoid arthritis, and Edwin Dunn, D.D.S., Imboden, pyorrhea.——At a meeting of the Sebastian County Medical Society, June 8, Drs. Joseph F. Shuffield, Little Rock, discussed "Treatment of Nonunion of Fractures and Special Treatment of Fracture of the Patella," and Ewell I. Thompson, Little Rock, "Treatment and Management of Syphilis."

CALIFORNIA

Mussel Quarantine.—A quarantine of all mussels from the ocean shore of California extending from the southern boundary of Los Angeles County north to the California-Oregon boundary, with the exception of San Francisco Bay, has been established for the period June 1-September 30.

Society News.—Dr. Maurice B. Visscher, professor and head of the department of physiologic chemistry, University of Minnesota School of Medicine, Minneapolis, addressed the Hollywood Academy of Medicine, July 15, on "The Old and the New in the Story of Digitalis."——Dr. Norman Bethune, Montreal, discussed "Experiences in Spanish War Hospitals" at a special meeting of the San Francisco County Medical Society, July 27. At a general meeting, August 10, Dr. Clarence A. Mills, James T. Heady professor of experimental medicine, University of Cincinnati College of Medicine, will speak on "Health and Disease Aspects of Environmental Effects; the Specific Relation of Air Conditioning to Health."——At a meeting of the San Joaquin County Medical Society in Lodi, June 3, Dr. Salvatore P. Lucia, San Francisco, read a paper entitled "Ancient Greek Physicians."——Dr. Frank H. Krusen, Rochester, Minn., addressed the Santa Barbara County Medical Society, Santa Barbara, June 14, on fever therapy.

COLORADO

New Division of Tuberculosis.—Dr. Fred A. Forney, Woodmen, has been appointed director of the new division of tuberculosis of the state department of welfare, with headquarters in Denver. Under a recent law, a sum was appropriated to provide care for indigent tuberculous patients in private tuberculosis sanatoriums. This law was passed in lieu of a proposed law to establish a state tuberculosis sanatorium, it was reported. It was supported by the state medical society in view of the large number of tuberculosis sanatoriums in Colorado which have been operating far below their capacity for many years. Under the new plan the state welfare board will hospitalize indigent persons in several of these institutions at a set per diem rate. Dr. Forney graduated at the University Medical College of Kansas City in 1906. A member of the

staff of the Modern Woodmen Sanatorium, Woodmen, for many years, he has been medical director and superintendent since last January. He was formerly county physician of Reno County, Kansas, and at one time president of the Kansas State Health Officers' Association.

FLORIDA

District Meeting.—The first annual meeting of the Northwest District of the Florida Medical Association was held in Apalachicola, July 15, with the following program:

Dr. Edward Jelks, Jacksonville, president, Florida Medical Association, Appendicitis.
Dr. Ernest F. Wahl, Thomasville, Ga., Uses and Abuses of the Electrocardiograph.
Dr. Frederick C. Moor, Tallahassee, Collapse Therapy in the Treatment of Pulmonary Tuberculosis.
Dr. Otis W. Britt, Chattahoochee, X-Ray Diagnosis.
Dr. Mark F. Boyd, Tallahassee, Malaria.

The program was arranged by the officers of the Leon-Gadsden-Liberty-Wakulla-Jefferson Counties Medical Society.

ILLINOIS

Memorial to a "Country Doctor."—The dedication of a huge boulder to the memory of Dr. Stewart Craig Thomson took place on the lawn of Byron school, August 1. Dr. Thomson was killed in an automobile accident, Oct. 30, 1931, near Byron. The boulder weighs nearly a ton and is inscribed with words commemorating the life and service of Dr. Thomson, who exemplified the typical "country doctor," newspapers reported. August 1 would have been his sixty-seventh birthday.

New District Health Units.—Nine full time district health units have recently been set up in Illinois, the first of twenty to be financed jointly by the state department of public health and the U. S. Public Health Service under the social security act. Following are the names of the newly appointed superintendents and the counties in their districts:

Dr. Wellington C. Van Wormer, Homewood: Cook, DuPage and Will counties.
Dr. James A. Poling, Freeport: Stephenson, Carroll, Jo Daviess, Lee and Ogle counties.
Dr. Carl A. Peterson, Moline: Bureau, Henry, Mercer, Rock Island and Whiteside counties.
Dr. Sandor Horwitz, Peoria: Marshall, Peoria, Putnam, Stark, Tazewell and Woodford counties.
Dr. Loran E. Orr, Greenview: Cass, Logan, Mason, Menard and Sangamon counties.
Dr. Nettie A. M. Dorris, Paris: Champaign, Coles, Douglas, Edgar and Vermilion counties.
Dr. Joseph L. Bryan, Xenia: Clay, Edwards, Jefferson, Marion, Wabash and Wayne counties.
Dr. Roland R. Cross, Dahlgren: Franklin, Gallatin, Hamilton, Saline, White and Williamson counties.
Dr. Lewis S. Barger, Golconda: Alexander, Hardin, Johnson, Massac, Pope, Pulaski and Union counties.

Chicago

The Capps Prize.—The Institute of Medicine of Chicago offers the Joseph A. Capps Prize of $500 for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition is open to graduates of Chicago medical schools who completed their internship in 1935 or who completed one year of laboratory work in 1936. The winner of the prize will be expected to present the results of his investigation before the institute at some meeting in 1938, the time to be designated later. Manuscripts must be submitted to the secretary of the institute, 86 East Randolph Street, Chicago, not later than December 31.

IOWA

Personal.—Dr. Harry P. Smith, professor of pathology, State University of Iowa College of Medicine, Iowa City, has received a grant of $10,000 from the John and Mary R. Markle Foundation for research on blood clotting and the bleeding tendency.

Society News.—Dr. Philip A. Daly, Chicago, addressed the Black Hawk County Medical Society in Waterloo, June 15, on "The Thyroid Gland in Relation to Pregnancy."——At a meeting of the Johnson County Medical Society in Iowa City, June 2, the speakers were Drs. Harry R. Jenkinson, on "Poisoning from Shoe Dye" and William F. Boiler, "Rocky Mountain Spotted Fever."——Dr. Henry G. Decker, Des Moines, discussed "The Scope of Neurologic Surgery" before the Madison County Medical Society in St. Charles, June 14.——At a meeting of the Ringgold County Medical Society in Mount Ayr, June 29, Drs. Charles L. Seaman, Mount Ayr, spoke on "Ulcerative Colitis"; Elbert J. Watson, Diagonal, pneumonia, and James W. Hill, Mount Ayr, ectopic gestation.

KANSAS

New Health Officers.—The following new health officers are announced in the state medical journal: Drs. Leroy S. S. Ott, Leoti, Wichita County; Otis H. True, Bird City, Cheyenne County; George R. Lee, Yates Center, Woodson County, and Edwin M. Ireland, Coats, Pratt County.

Temporary Injunction to Osteopaths.—Federal Judge Richard J. Hopkins granted the osteopaths of Kansas a temporary injunction, June 29, in an action filed to compel H. D. Baker, collector of internal revenue in Kansas, to issue them narcotic permits. A recent ruling of the attorney general of the state, concurred in by the U. S. Narcotic Division, stated that osteopaths in Kansas were not legally entitled to administer narcotics. Permanent ruling in the matter probably depends on the outcome of two test cases, now pending in Kansas courts, concerning osteopaths' rights under the state osteopathic practice act, it is said.

LOUISIANA

Dr. Walton Goes to Mississippi.—Robert P. Walton, Ph.D., assistant professor of pharmacology, Tulane University of Louisiana School of Medicine, New Orleans, has been appointed professor and head of the department of pharmacology, University of Mississippi School of Medicine, University, Miss. He will take over the position September 1, it is reported. Dr. Walton has been identified with Tulane since 1929, shortly after he received his degree of doctor of philosophy at Columbia University, New York.

New Professors at Louisiana Graduate School.—Dr. Walter E. Levy, assistant professor of clinical obstetrics, Tulane University of Louisiana School of Medicine, New Orleans, and professor of obstetrics at the graduate school, has resigned to become professor and head of the department of obstetrics at the Louisiana State University Graduate School of Medicine. Dr. Levy graduated at Tulane in 1917. Dr. William D. Phillips, formerly on the staff at the graduate school of Tulane, has been appointed professor and head of the department of gynecology at Louisiana State and Dr. John F. Dicks, also a former member of the staff of Tulane, has been named professor of gynecology and associate director of the department. Dr. Phillips graduated at Tulane in 1909 and Dr. Dicks in 1912.

MASSACHUSETTS

Another Million Volt X-Ray Unit.—A new million volt x-ray machine was recently installed in the Collis P. Huntington Memorial Hospital, Harvard University Medical School, Boston, for the treatment of patients with cancer.

Officers of Medical Board Reelected.—Dr. Francis R. Mahony, Lowell, was reelected chairman of the Massachusetts Board of Registration in Medicine at its recent annual meeting and Dr. Stephen Rushmore, Boston, was reelected secretary.

Acting Commissioner of Mental Diseases.—Dr. Clifton T. Perkins, Brookline, a member of the state department of mental diseases since 1935, has been appointed assistant commissioner and acting head of the department during the illness of Dr. David L. Williams, commissioner. Dr. Perkins is a graduate of Boston University School of Medicine, 1926.

Personal.—Dr. Marshall L. Alling, Lowell, has been reappointed medical examiner of the fifth Middlesex district.——Dr. Edward W. Wilder, head of the Willis F. Pierce Memorial Hospital, Madura, India, who has been active in missionary work in India, was recently awarded the silver Kaiser-i-Hind medal, a decoration given by the Indian government for distinguished service in social or educational work, according to the Boston *Traveler*. He is a native of Boston.——Otto Krayer of the faculty of the American University of Beirut, Syria, formerly of the University of Düsseldorf and the University of Berlin, has been appointed associate professor of pharmacology, Harvard University Medical School, Boston, for five years beginning next September, according to *Science*.

MINNESOTA

Cardiac Hospital Project.—A cardiac clinic for treatment of children susceptible to the development of chronic heart disease has been maintained since December 1935 as part of the Lymanhurst Health Center, Minneapolis, by the Works Progress Administration, under the auspices of the city division of health. Since the project was begun, 135 children suffering with incipient heart disease have been treated. The undertaking includes research activities in the laboratory connected with the clinic and the compilation of records to determine causes and proper correctional procedure for treatment of these cases. The hospital occupies the top floor of the health center. There are two wards of twenty beds each, a study room, children's

dining room, library, enclosed porch for play, diet kitchen, electrocardiograph room, a two-bed isolation ward and an administrative suite. The patients range between 4 and 14 years of age, are selected from the children attending the heart clinic at Lymanhurst and are admitted through the Minneapolis Public Relief Admitting Service for General Hospital. School nurses and physicians refer children who complain of symptoms suggesting rheumatic infection or who are found to have evidence of cardiac disease during their regular school physical examination. On admission, seventy-seven were found to have potential heart disease, with active rheumatic infection but as yet no signs of heart involvement. The patients are carefully studied through x-ray, electrocardiograph and laboratory examinations. They receive care for an average period of three months and are kept strictly on bed rest until all signs of activity have disappeared. In almost every instance the active rheumatic infection has become quiescent and their general condition has improved under the supervised treatment, it is reported. School work is provided from kindergarten to the tenth grade. Follow-up work is carried on after the child is discharged. Dr. Francis E. Harrington, city health commissioner, directs the project, which is supervised by Dr. Morse J. Shapiro.

MISSOURI

Dr. Davis's Slayer Sentenced to Hang.—Robert Kenyon was found guilty, July 23, of slaying Dr. James C. B. Davis, Willow Springs, and was sentenced to be hanged September 2. Dr. Davis, aged 67, was summoned into the country January 29 on a fictitious call to attend a patient. The Davis family became alarmed after receiving two ransom demands for $5,000. His bullet-torn body was found in a thicket a week later, it was reported.

Hospital News.—The construction of a new $1,080,000 marine hospital in Kirkwood has been approved.——Work has begun on a new psychopathic hospital, adjacent to the City Hospital, St. Louis, to be named in honor of the late Dr. Malcolm A. Bliss. It will be five stories high, with accommodations for 186 patients.——The Park Lane Memorial Hospital, St. Louis, has recently been opened; it has a capacity of sixty beds. Dr. Frank J. Smith is the director.

Health Coordinator Named.—Sen. James S. Rollins, Columbia, representing the tenth Missouri district in the state senate, has been selected by the federal government to act as coordinator between the state board of health and the state department of education in the public health education program which is to be incorporated into Missouri's schools, newspapers report. Senator Rollins' salary will be paid with federal funds, it was stated, and his office will be located in the headquarters offices of the state department of health.

MONTANA

State Medical Election.—Dr. James C. MacGregor, Great Falls, was chosen president-elect of the Montana State Medical Association at the annual meeting in Great Falls, July 13-14, and Dr. William P. Smith, Columbus, was installed as president. Dr. Ernest D. Hitchcock, Great Falls, was elected vice president and Dr. Thomas L. Hawkins, Helena, secretary.

NEW YORK

Cancer Commission Appointed.—Members of a commission authorized by the recent session of the legislature to survey the prevalence of cancer in the state and facilities for treatment were recently announced. Six members of the legislature were appointed by officials of that body and the following physicians were named by Governor Lehman: Drs. Edward S. Godfrey Jr., Albany, state health commissioner; James Ewing, director of cancer research, Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, and Floyd S. Winslow, Rochester, immediate past president of the Medical Society of the State of New York. The commission has an appropriation of $15,000 and will report to the 1938 legislature.

Medical Minstrels.—Alumni of the Syracuse University College of Medicine presented "Medical Minstrels of 1937" after the annual alumni dinner June 1 at the Hotel Syracuse. Nearly 100 physicians took part in the show, which included an old fashioned minstrel show, musical presentations, dancing and a skit called "The Bedside Manner," written by Dr. William E. Pelow. Among special numbers were solos by Drs. Raymond D. Markle, Waterbury, Conn., Francis R. Irving and Henry Walden Retan; dancing by Drs. Harry C. Myron Jr., and Thomas E. Walsh; a two piano act by Dr. John C. M. Brust and Mr. Henry Lipes, and a quartet by Drs. Raymond Markle, Charles D. Reid, Gordon D. Hoople and Thomas F. Laurie. Dr. George L. Wright was interlocutor for the minstrel show.

New York City

Three Health Centers Dedicated.—Three district health centers for the New York City Department of Health have been dedicated since the first one of the group, that in East Harlem, described in THE JOURNAL, July 17, page 215. They are the Mott Haven center, 349 East One Hundred and Fortieth Street, dedicated June 29; the Lower West Side center, 303 Ninth Avenue, July 13, and the Greenpoint center, 151 Maujer Street, Brooklyn, July 27.

Changes in Faculty at Long Island College.—A department of preventive medicine and community health has been established at Long Island College of Medicine, Brooklyn, under the direction of Dr. Alfred E. Shipley, professor of clinical preventive medicine and community health, it was recently announced. The new department will conduct most of its work in the Red Hook-Gowanus Health Center through an affiliation recently effected with the New York City Department of Health for training of medical students in public health work. Dr. Tasker Howard, professor of clinical medicine, has been promoted to be professor of medicine and physician-in-chief to Long Island College Hospital, to succeed the late Dr. Luther F. Warren. Dr. Robert L. Moorhead has been appointed professor of clinical otolaryngology to succeed Dr. Charles Waldo Stickle, now emeritus professor, and Dr. Fedor L. Senger, assistant clinical professor of urology, has succeeded Dr. J. Sturdivant Read, now professor emeritus. The appointment of Dr. Jean A. Curran as dean of the school was announced in THE JOURNAL, March 13, page 891.

The Health Exhibits at the New York World's Fair.—Plans for a million dollar medical and health exhibit at the New York World's Fair in 1939 were announced recently by Grover A. Whalen, president of the fair, and Louis I. Dublin, Ph.D., chairman of the executive committee of the fair's advisory committee on medicine and public health. A design for the building, which may be called "A World of Health," has been completed. About 10,000 feet of floor space will be used for a display that "will indicate to man, in an entirely new and dramatic manner, what to do so that he may take utmost advantage of the store of scientific knowledge now available to insure his health and that of his family." The health building will occupy a triangular plot of land on the "Theme Plaza," will be in the form of a V and will cost about $425,000. In the center will be the Hall of Man, an oval chamber in which will be a heroic figure of man revealing by transparency the internal anatomy, the circulatory, digestive and nervous systems and the glands of internal secretion. Here also will be numerous models explaining man's physiology. To the left of the Hall of Man will be the Hall of Medical Sciences, in which will be displays showing various diseases and the means available for protection against them. There will also be a Hall of Public Health and a Theater of Hygiene, where lectures will be presented by medical and health authorities. Many models will be so arranged that they can be manipulated by the visitors to show such motions as the articulation of joints, flow of blood and the processes of digestion. In addition to these displays sponsored by the fair, the building will have about 70,000 feet of floor space to be "financed by a group of selected sponsors."

PENNSYLVANIA

Personal.—Dr. Roy W. Goshorn, Bellwood, has been appointed superintendent of the Blair County Hospital for Mental Diseases, Hollidaysburg, to succeed the late Dr. Henry J. Sommer.——Dr. Carl E. Ervin, chief of the medical department of George F. Geisinger Memorial Hospital, Danville, has resigned to enter private practice in Harrisburg.

Society News.—Dr. William L. Long, Philadelphia, addressed the Lehigh County Medical Society, Allentown, July 13, on "The Use of Some New Drugs Affecting the Sympathetic and Parasympathetic Nervous System."——At a meeting of the Venango County Medical Society in Oil City, June 18, a symposium on cancer was presented by Drs. Cecil H. Hodgkinson, Oil City; Paul E. Cunningham and Franklin P. Phillips, Franklin, and John C. Wilkins and Joseph T. Danzer, Oil City.——Dr. Chevalier L. Jackson, Philadelphia, addressed the Schuylkill County Medical Society, Shenandoah, June 22, on "Indications for Bronchoscopy."——Dr. Arvin E. Trollinger of the staff of the Veterans' Administration Facility at Coatesville addressed the Chester County Medical Society at the hospital, July 20, on insulin treatment of dementia praecox.

Philadelphia

Promotions at Temple. — Among promotions recently announced by Temple University School of Medicine were the following:

Dr. Louis Cohen, to be assistant professor of medicine.
Dr. Morton J. Oppenheimer, assistant professor of physiology.
Drs. Wilbur E. Burnett and James Norman Coombs, assistant professors of surgery.

Police Surgeon Attacked. — Dr. Joseph T. Freeman, a police surgeon, received a fractured jaw and lacerations of the head in an attack by a group of men who hailed him to have a supposedly injured companion taken to a hospital, according to a newspaper report. Dr. Freeman lifted the injured man into the rumble seat of his car and when he told others of the group he was unable to take them all, he was beaten severely. One man when arrested confessed in court to the attack.

Personal.—Dr. David Riesman, emeritus professor of clinical medicine and professor of the history of medicine, University of Pennsylvania School of Medicine, received an honorary doctorate of laws at the June commencement of the University of Wisconsin.——Dr. Basil R. Beltran has been appointed chief surgeon and medical director of the eastern state penitentiary, succeeding the late Dr. Mitchell P. Warmuth. —— Dr. Rose Hirschler has been appointed professor of dermatology at the Woman's Medical College of Pennsylvania. Dr. Hirschler graduated from the college in 1899.——Dr. Elise Whitlock-Rose recently received a gold medal, the annual achievement award of the San Domingo Council, Knights of Columbus, in recognition of her work at the Notre Dame des Malades Clinic, which she founded for the care of indigent women and children.

Pittsburgh

Personal.—Dr. Paul Titus was recently decorated by the Hungarian government with the Commander Cross of the Hungarian Order of Merit in recognition of his work in obstetrics. Dr. Titus is secretary of the American Board of Obstetrics and Gynecology.

SOUTH CAROLINA

Society News. — Drs. Benjamin C. Bishop and William Thomas Brockman addressed the Greenville County Medical Society, Greenville, July 5, on "Hemorrhoids—When to Treat and When to Operate" and "Nervous Indigestion and What Can Be Done About It" respectively.——Dr. Keitt Hane Smith, Greenville, addressed the Oconee County Medical Society, June 3, on treatment of urinary infections by mandelic acid. ——At a meeting of the Fifth District Medical Society recently in Chester the speakers included Drs. Stephen W. Davis, Charlotte, N. C., on "Physical Therapy" and Verling K. Hart, Charlotte, "Bronchoscopy in the Diagnosis of Intrathoracic Conditions."——Dr. Isaac A. Bigger, Richmond, Va., addressed the York County Medical Society, Rock Hill, at a special meeting July 8, on "Surgery of the Pericardium and Heart." ——Among speakers at the annual meeting of the Eastern Carolina Medical Association at Myrtle Beach July 16 were Drs. James Heyward Gibbes, Columbia, "Heart Pains"; James C. McLeod, Florence, "Management of Acute Injuries"; Samuel F. Ravenel, Greensboro, N. C., "The Nervous Child"; Joseph Decherd Guess, Greenville, "Problems in the Conduct of Labor," and Elbert L. Persons, Durham, N. C., "An Everyday Approach to Skin Disease."

TENNESSEE

Promotions at Vanderbilt.—Promotions recently announced by Vanderbilt University School of Medicine, Nashville, included the following:

Dr. Edna H. Tompkins, to be associate professor of anatomy.
Morton F. Mason, Ph.D., assistant professor of biochemistry.
Dr. Herbert C. Francis, assistant professor of preventive medicine and public health.
Roy J. Morton, M.S., assistant professor of preventive medicine and public health.

TEXAS

Society News.—At a meeting of the Gray-Wheeler Counties Medical Society in Wheeler recently, the speakers included Drs. Joel Zeigler, Shamrock, on "Blood Transfusions"; Elmer W. Jones, Wellington, "Unilateral Polycystic Kidney," and Harold E. Nicholson, Wheeler, "Review of the Vitamins, Their Sources and Uses."——Drs. Henry A. Petersen and John T. Moore, Houston, addressed the Hardin-Tyler Counties Medical Society, June 8, on "Trend Toward Socialized Medicine" and "Fundamentals in Treatment of Cancer of the Breast" respectively.——A symposium on tuberculosis was presented before the McLennan County Medical Society, Waco, June 8, by Drs. Frederick W. Hoehn, Walter C. Bidelspach, Wesley W. Klatt and James W. Hale, all of Waco.——The Dallas Obstetrical Society was recently organized with the following officers: Drs. Wayne T. Robinson, chairman; Watt W. Winn, vice chairman, and Herbert F. Laramore, secretary.——Dr. Joseph H. Dorman, Dallas, was elected president of the Texas Railway Surgeons' Association and Dr. Ross B. Trigg, Fort Worth, reelected secretary at a meeting in Fort Worth in May.

WEST VIRGINIA

Personal.—Dr. and Mrs. Cyrus Haymond Maxwell, Morgantown, celebrated their golden wedding anniversary July 6 with a reception at their home. Dr. Maxwell was born in 1863 and graduated from Gross Medical College, Denver, in 1898 after having been a teacher in Arkansas, Oregon, California and West Virginia. He has practiced in Morgantown about thirty-five years. In 1930-1931 he was president of the West Virginia Medical Association.

GENERAL

Oregon License Lost.—Dr. Roger W. Debusk, Madison, Wis., reports that he has lost a license granted to him in January 1935 by the Oregon State Board of Medical Examiners. The number of the license is 2792.

Council to Coordinate Birth Control Activities.—A central council to coordinate the activities of the American Birth Control League and the Birth Control Clinical Research Bureau has recently been formed. Mrs. Margaret Sanger is chairman of the new council, which will be known as the Birth Control Council of America, and Henry Pratt Fairchild, Ph.D., New York, is vice chairman. Members representing the American Birth Control League are Mrs. Louis deB. Moore, Drs. Frederick C. Holden and Eric M. Matsner, New York, and Clarence C. Little, Sc.D., Bar Harbor, Maine, alternate. Those representing the Birth Control Clinical Research Bureau are Dr. Hannah M. Stone, Rabbi Sidney E. Goldstein and Dr. Ira S. Wile, with Dr. Abraham Stone as alternate. All are of New York.

Internal Use of Opium Preparations Defined.—The use for aural, nasal, ocular, rectal, urethral or vaginal purposes of preparations containing opium or any of its salts or derivatives is not external use, but is internal use and is to be regulated accordingly, under a recent amendment by the Acting Commissioner of Narcotics of Article 103 of Narcotic Regulations No. 5, as amended. The manufacture, compounding, dispensing and use for any of the purposes named of any preparation containing opium or any of its salts or derivatives in excess of the quantities allowed for so-called exempt preparations by the Harrison Narcotic Act, as amended, must conform in every respect with the law and regulations governing the manufacture, compounding, dispensing and use of the same drugs for other internal uses.

Film Shows Radium Refining Processes.—A film celebrating the completion of production of the first ounce of radium at the El Dorado Refinery, Port Hope, Ont., from ore taken out of the radium deposits discovered in 1930 near Great Bear Lake in northwestern Canada, was completed and shown during the week of July 8. According to an announcement, the film shows the refining process, which now produces radium crystals at the rate of 3.5 Gm. a month. It also shows ceremonies celebrating the production of the first ounce, attended by Sir Frederick Banting, Toronto; Gilbert LaBine, the mining engineer who discovered the radium deposits, and Dr. Herbert C. Bruce, lieutenant governor of Ontario. Since the discovery of the Canadian ore, the price of radium, previously controlled by the Belgian monopoly that owns the supply in the Belgian Congo, has dropped from $75,000 to $25,000 a gram, it is said. It is estimated that the total supply of radium in the world is about 600 Gm., of which about 225 Gm. is believed to be in the United States.

Society News.—Dr. George Miller MacKee, New York, was elected president of the Society for Investigative Dermatology at the organization meeting in Atlantic City in June. Dr. Joseph V. Klauder, Philadelphia, was made vice president; Dr. Samuel W. Becker, Chicago, secretary, and Dr. Joseph Gardner Hopkins, New York, treasurer. The society was organized for the purpose of presenting a forum for those interested in the investigative field of dermatology, including not only dermatologists but investigators in allied fields who are working with the skin and its appendages.——Dr. William P. Healy, New York, was chosen president-elect of the American Radium Society at the annual meeting in Atlantic City in June, and Dr. Edward H. Skinner, Kansas City, Mo., was installed as president. Other officers elected were Drs. Laurence R. Taussig, San Francisco, and Maurice Lenz, New

York, vice presidents, and Frederick W. O'Brien, Boston, secretary.——The Central Association of Obstetricians and Gynecologists will hold its ninth annual meeting October 14-16 at the Hotel Adolphus, Dallas, Texas.

FOREIGN

Exhibition of Summer Camps.—A National Exhibition of Summer Camps and Youth Welfare was opened in Rome June 20 and will continue to September 30. It is announced that the exhibition is designed to give a complete idea of what is being done in Italy to foster the moral and physical health of the younger generation.

The Marking of Thermometers.—A law has recently been adopted in Czechoslovakia requiring that fever thermometers be "hall marked," according to a report from the U. S. Department of Commerce. Henceforth only mercury type thermometers with the official Czechoslovak "hall mark" can be sold and used by the local medical profession.

Prize for Medical Reports.—The Académie Duchenne de Boulogne, Paris, is offering a prize of 10,000 francs for reports of work in the medical sciences by an independent worker of French nationality. The prize will be awarded the first Thursday in December and reports must be sent by October 1 to the Secretariat of the Academy, Centre Marcelin Berthelot, 28 Bis, rue Saint-Dominique, Paris 7.

Society News.—The ninth International Congress of Psychotherapeutists will be held at Copenhagen, October 2-4. Further information can be obtained from Prof. Poul Bjerre, 4 Engelbrektsgatan, Stockholm.——The "Congrès International du Tourisme, du Thermalisme et du Climatisme" will have a meeting in Paris at the exposition grounds October 14-17, at which Dr. Guy Hinsdale, White Sulphur Springs, W. Va., will represent the United States.——The International Spa Congress will be held in Budapest October 7-14.——The Royal Medical Society of Budapest will celebrate its centenary, October 6-8.

International Medical Week in Switzerland.—The *Swiss Journal of Medicine* has organized the third International Medical Week, to be held at Interlaken from August 29 to September 4. One day will be spent at Berne under the auspices of the medical faculty of the University of Berne. Among the lecturers listed on the program are:

Dr. Hugh W. Cairns, London, Results of Treatment of Intracranial Tumors.
Dr. Otto Loewi, Graz, Austria, Chemical Transmission of Nerve Impulses.
Dr. Hans Spemann, Freiburg, Germany, New Observations on the Manner of Animal Development.
Dr. Hans C. Hagedorn, Copenhagen, Denmark, Advances in Insulin Therapy.
Dr. Leopold Lichtwitz, New York, Disturbances in Regulation of Carbohydrate Metabolism.

For information address the *Journal Suisse de Médecine*, Klosterberg 27, Basel.

CORRECTION

Forty-Two Years a Secretary.—THE JOURNAL, June 12, page 2045, reported that Dr. Thomas Douglass, Ozark, Ark., had been secretary of the Franklin County Medical Society continuously for forty-three years with the exception of the year 1922, when the late Dr. Edward W. Blackburn, Ozark, held the office. Dr. Blackburn was vice president and not secretary, as recorded in the news item.

Government Services

Changes in Public Health Service

The following appointments and commissions have been announced in the U. S. Public Health Service:

Dr. Richard S. Bolten, assistant surgeon, reserve corps, Lewisburg, Pa.
Dr. Leo D. O'Kane, assistant surgeon, reserve corps, Leavenworth, Kan.
Dr. William Walcott, passed assistant surgeon, reserve corps, Washington, D. C.
Dr. Jeff T. Anderson, as passed assistant surgeon, reserve corps, Fort Leavenworth.
Dr. Wightman R. Duke, assistant surgeon, reserve corps, at New Orleans.
Dr. Dale C. Cameron, as assistant surgeon, reserve corps, San Francisco.
Dr. Martin A. Ruona, assistant surgeon, Springfield, Mo.
Dr. John A. Lewis Jr., as assistant surgeon, reserve corps, U. S. Marine Hospital, Cleveland.
Dr. Jack L. James, assistant surgeon, reserve corps, Leavenworth.
Dr. Wixom S. Sibley, assistant surgeon, reserve corps, U. S. Marine Hospital, Cleveland.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 10, 1937.

The Promotion of Clinical Research

The Medical Research Council is inviting applications for a second series of studentships and fellowships intended to encourage young British medical graduates of special ability and original mind toward becoming investigators in branches of medical science. The field includes investigation into disease in patients with experimental work of an immediately relevant kind. Six postgraduate studentships are offered for graduates who have already held house appointments. Each selected student will receive $1,000 per annum in a period not exceeding twelve months for personal maintenance while undertaking such approved courses of study as may be best calculated to advance his training in methods of research. This study may include modern languages and such advanced physiologic, pathologic and special clinical work, under recognized teachers, as may form a suitable preliminary to research work to be undertaken later. The approved course may not include studies of which the purpose is to enable the student to pass further examinations.

The council is also offering four research fellowships for candidates of similar qualifications who already have had some experience in research methods. Each will be tenable for one year at $1,250 per annum and will be renewable in approved instances at the rate of $1,500 for a second year. They are intended as probationary appointments for research in clinical science or experimental pathology. Research expenses may be provided in addition to the stipend.

The National Physique

Improvement of the national physique has become a foremost political problem. In the House of Lords Earl Stanhope, president of the Board of Education, moved the second reading of the physical training and recreation bill, which has already passed through the Commons. He said that the demand for increased opportunities for physical training and fitness, particularly among the youth, was a striking phenomenon of the present day. Viscount Dawson (president of the Royal College of Physicians) stated that the bill was necessary in the interest not only of the present generation but of future generations. In the past, nature secured a fit race by killing off the unfit. Now we were gradually undoing nature's efforts by our greater sense of humanity toward the weak. He did not doubt that this was the right policy, but it increased the necessity to create fitness. A national college of physical training was the pivot of the scheme. There students would learn technic and men who were going to take up physical education as a whole time job could be trained. Organizers and leaders of voluntary organizations could receive a shorter and less strenuous training.

Turning to the need for adequate nutrition, Viscount Dawson said that the distribution of undernutrition was patchy. In the London elementary schools the children were for the most part well nourished, even in the poorest districts. On the other hand, in the distressed areas, where unemployment was rife, undernutrition could be found. But it had to be remembered that many heads of households had never been taught how to choose food and spend their earnings to good advantage. Further, few knew how to cook. One of the best investments that the government could make would be to provide traveling vans to go about the country, from which lectures could be given on the choice and cooking of food.

Replying for the government, Earl Stanhope agreed that undernutrition was due more to lack of education than to lack

of money. In Czechoslovakia the improvement of physique among all classes, and particularly among the working classes, by voluntary methods was remarkable. This was due more to physical training than to better nutrition.

The Measurement of Daylight in Rooms

Some 2,000 scientists and industrialists visited the National Physical Laboratory to see the progress that had been made in practical scientific research during the past year. They were received by Sir William Bragg, president of the Royal Society and chairman of the general board of the laboratory. In the photometry department has been perfected a factor meter which automatically measures the amount of daylight penetrating into rooms. By means of two photo-electric cells the intensity of light in a room is compared with that of the sky vault. It is thus possible to tell at a glance how good or how bad is the lighting of a room. The daylight factor is beginning to be used extensively by the authorities in deciding on slum clearance schemes, for the instrument has the advantage of not being subject to errors of judgment on the part of the user. The minimum daylight factor considered suitable for working conditions is 0.2 per cent. In some of the Glasgow slums the factor is as low as 0.003 per cent.

Another apparatus is used for testing the sensitivity of the eye to colored light, with special reference to colored street lights. It has been suggested that the eye may work most efficiently by the light of some particular color. To test this theory a cinema film of a street scene was prepared in which various objects appear and disappear. This is projected on a screen by means of lights of different colors. The time taken by observers to notice the various objects is measured for the different colors.

Some Improvement in Road Accidents

The National "Safety First" Association is able to announce some improvement in the number of road accidents, owing partly to its efforts, though the toll taken by the roads is still appalling. Until 1930 the number of road casualties increased in almost the same proportion as the number of automobiles. But compared with 1930 the 1936 statistics showed an increase of 20 per cent in the number of automobiles, while there was a decrease of 18 per cent in the number of pedestrians killed. These figures are valuable because for the first time in the comparison of road casualties the increase in the number of automobiles is taken into account. In the case of children the improvement is even more marked, for there has been a reduction each year since 1930 in the number of their fatalities, and this in 1936 was 25 per cent below the level of that year. But there is an increase of 69 per cent in the number of cyclists killed, which is attributed to the increased popularity of cycling. It is more than twenty years since the movement for greater safety on the roads was begun and the original safety code recommended is now the official highway code. But the accident problem is so great that there is still much work for the association, though more and more of its work is being officially undertaken.

Provident Nursing Scheme for London

A scheme by which in London the working class can have services of nurses in their homes by the provident payment of one cent a week has been brought forward. Speaking at an inaugural meeting, Lord Horder, chairman of the council, said that the reason so small a subscription was adequate was that it could be collected in bulk at the place of employment. Home nursing was the only health service which still remained uncovered by the provident principle. London was lagging behind many of our large cities where the system had been established and proved successful. What are called "district nurses" are already provided by charity for the same purpose, but it has proved necessary to ask for payment from patients of what they can afford.

PARIS

(From Our Regular Correspondent)

July 3, 1937.

Benign Spontaneous Pneumothorax

At the May 21 meeting of the Société médicale des hôpitaux, two unusual cases were reported by Prof. E. Rist, one of the leading tuberculosis specialists in Paris. The first patient, a youth of 17, first noticed a severe thoracic pain without much dyspnea. A few days later a hemorrhagic pleural exudate was found at the base of the right side of the thorax. Fifteen days after the exploratory puncture, all the accompanying fever and signs of the exudate had disappeared. Radioscopy revealed only a slight diminution of diaphragmatic movements and a normal pulmonary shadow. After an interval of thirty-three months, during which all examinations had been negative, radioscopy revealed a complete right pneumothorax and a slight pleural exudate. This observation cleared up the origin of the previous hemorrhagic exudate as being due to a benign spontaneous thorax with hemorrhage. The second patient, a medical student, gave the history of having had a serofibrinous pleurisy. Six years later a sudden severe pain in the chest accompanied by dyspnea was noted. The following day a complete total right pneumothorax was found, which disappeared rapidly, followed by apparently complete recovery. In this case there had been an old tuberculous pleurisy followed by a spontaneous benign pneumothorax on the opposite side. In the discussion, Dr. Cathala reported a case in which bleeding from the right nipple in a young girl was followed by a benign spontaneous pneumothorax of the same side. The question arose whether there was any relation between the two in the form of rupture of tiny angiomas. Dr. Jacob reported a case of spontaneous benign pneumothorax accompanied by syncope and a large hemorrhagic pleural exudate. There was also a history of a severe hemoptysis, of short duration, followed by apparent cure. Radioscopy had been negative during this attack.

Nonoperative Treatment of Pulmonary Tuberculosis

At the May 21 meeting of the Société médicale des hôpitaux a paper was read by Léon-Kindberg and Weiller on the division of bandlike adhesions and associated intrapleural chrysotherapy: rapidly efficacious artificial pneumothorax. They stated that the two chief obstacles in securing results from an artificial pneumothorax, are, first, band or bridle-like adhesions between the lung and the parietal pleura and, second, the irretractability of the pulmonary stump (collapsed lung). To overcome the first of these the Jacobeus technic has been of great aid, but it is often difficult to carry out. Léon-Kindberg has called attention to the good results obtained by injecting gold salts intrapleurally, at first alone and, later, combined with intrapleural procedures. These two methods are now regularly employed at the Beaujon Hospital. The results were illustrated by lantern slides. By applying this method in half of the cases in Léon-Kindberg's service, its efficacy could be compared with cases in the other half of the service, not so treated. The importance of the combined gold salts therapy and intrapleural division of bands is especially evident when collapsotherapy as a whole is considered. In the discussion, Professor Rist agreed with the authors as to the efficacy of early pneumothorax treatment. Four fifths of the cases thus treated have shown the benefit of early pneumothorax therapy within six months and half of these in less than three months. About one fifth of the patients have shown evidence of its efficacy later than six months after beginning the early pneumothorax treatment. This late appearance of a beneficial result may be due to faulty technic in giving the pneumothorax treatment, improvement occurring later, when a more correct technic is used. Improvement follows division of bandlike adhesions, and the benefits of the pneumothorax treatment manifest themselves only after the establishment of an artificial pleural exudate.

Icterohemorrhagic Spirochetosis

Two papers on icterohemorrhagic spirochetosis were read at the May 7 meeting of the Société médicale des hôpitaux. The first paper reported three cases in coal miners and was presented by Rimbaud, Janbon and Bordenave of Montpelier, in southern France. Apparently the disease raged in a mild endemic form, fifteen miners having shown symptoms during August 1936. Four of the fifteen died. In the first of these three cases, the chief clinical features were a febrile syndrome with myalgia and injection of the conjunctivae, marked icterus, a blood urea of 110 mg. per hundred cubic centimeters, and a meningeal reaction. The second patient presented a febrile syndrome with myalgia, a subicteric hue, a less marked meningeal reaction (14 lymphocytes), a blood urea of 150 mg. per hundred cubic centimeters, which did not appear until the twenty-eighth day, and positive Martin-Pettit serodiagnostic reactions. In the third case, in addition to the febrile and myalgic syndrome, purpura and phrenic neuralgia were noted. The blood urea rose to 170 mg. per hundred cubic centimeters and the spinal fluid contained seventy-four mixed cells. The serum reactions of Pettit and Martin were positive. Relapse of symptoms occurred twice during the period of observation. Attention was especially drawn by the authors to the high blood urea in the three cases, as well as to the incidence of this form of infection in miners. This raises the question as to whether icterohemorrhagic spirochetosis should be considered as a professional, i. e., industrial, disease. In the 1936 law it is so regarded, but its possible occurrence is limited to those who work in the sewers of large cities, like Paris. Hence the authors maintain that in view of their observations it is necessary to include miners in those who can benefit from such a law.

In a second communication by the same authors, two cases of the disease are reported in which icterus was absent. Such a typical form of icterohemorrhagic spirochetosis, without hemorrhages or icterus, are difficult to recognize clinically. The first patient was a dish washer in a restaurant situated on the bank of a little river in southern France. The onset was sudden, in the form of chills followed by profuse perspiration, headache, dysphagia, and generalized pain in the muscles and joints. The admitting diagnosis was influenza, bronchitis and pharyngitis. During the patient's stay in the hospital the constant absence of icterus was noted, but the urine examination revealed the presence of bile salts and pigments. The temperature varied from 103 to 104 F. The blood urea was normal but there were symptoms resembling those of meningitis. The serum reactions of Pettit and Martin were positive. The second patient was a girl, aged 16 years. The onset and initial syndrome were quite analogous to those of the other patient. There were, however, a morbilliform erythema, a blood urea of 100 mg. per hundred cubic centimeters, no icterus or bile salts or pigments in the urine, and a secondary meningeal syndrome with 216 leukocytes of mixed formula in the fluid obtained by spinal puncture. The serum reactions of Pettit and Martin were strongly positive.

Echinococcus of the Liver

At the June 2 meeting of the Académie de chirurgie a contribution to the study of echinococcus infection in France was made by Dr. F. Devé, an internist. He reported that surgeons of Besançon had observed seventeen cases, to which Wilmoth added another, making a total of eighteen cases, seventeen of which were from the departments of France adjacent to western Switzerland. All eighteen patients had been born and raised in that portion of France. In addition to these, three other isolated cases had been reported from northern and central France. The clinical picture is that of a chronic icterus with hepatomegaly and splenomegaly and the striking anomaly that not only are the general condition and appetite good but there is no accompanying rise of temperature. In the majority of cases the complement deviation and intradermal tests with the hydatic liquid are positive. Any doubt regarding the diagnosis is cleared up by biopsy at operation. Surgeons should be familiar with the special appearance of the lesions, as was shown in sections of tissue presented by Devé at the meeting. There are no ordinary cystic single or multilocular earmarks of the disease. It forms a tumor-like, more or less colloid, mass, which explains why it is often diagnosed as a cancer of the liver. The essential feature is the presence of firm, sclerotic tissue, literally riddled by many cavities the size of a pinhead. Near the central zone the mass shows evidence of softening and necrosis, leaving a turbid bile-stained liquid lying in a tiny cavity in which neither hydatid cysts nor membranes are ever found. At its periphery one finds constant infiltration, with necrosis, of the fibrous sheaths of the bile ducts as far as the hilus of the liver, thus greatly resembling the picture of a malignant growth. The jaundice is the result of extrinsic pressure on the bile ducts at the hilus and the intracanalicular invasion of the bile passages by the echinococcus formations. When the abdomen is opened the gross appearance of the liver strongly resembles that of a cancer, but the nodules present special pathognomonic features. They are harder than those of a cancer, more boardlike, cartilaginous, and often accompanied by a thick sclerotic hepatitis of chondroid aspect. A biopsy soon reveals the nonmalignant character of the lesions.

Noncancerous Consolidations in Pulmonary Cancer

To make an early diagnosis of cancer of the lung, one must always bear in mind that the neoplasm begins in the bronchi, according to Ameuille and Fauvet, who read a paper at the May 14 meeting of the Société médicale des hôpitaux. When evidence of consolidation of the lung itself is found, this means that the neoplasm is already at an advanced stage, the primary bronchial cancer having invaded the surrounding lung tissue. However, the special point of the paper was to call attention to the existence of consolidation of a noncancerous character. Two cases were described. In the first patient, the diagnosis of a cancer, well localized in a left sided bronchus, was made with the aid of iodized poppy-seed oil. It was accompanied by complete absence of respiratory sounds in the middle third of the left lung. There was also evidence of consolidation in the right middle lobe. At necropsy the diagnosis of the left bronchial cancer was verified but the area in the right lung proved to be a focus of gangrene and pneumonia not directly related in any way to the lesion on the left side. In primary bronchial cancer one frequently sees areas of atelectasis around the cancerous areas in the lung. This collapse of the lung may be quite extensive and is the direct result of the blocking of the corresponding bronchus by the neoplasm. Such atelectases may appear suddenly and the clinical picture is like that of acute massive collapse of the lung. A diagnosis of cancer of the left lower main bronchus was made in the second case, which had been under observation for ten months. The first clinical sign had been a sudden hemoptysis, in a man 50 years of age. Bronchography with the aid of iodized oil and examination of biopsy specimens obtained by endoscopy showed a cancer of the bronchi of the right median and lower lobes. Following a slight hemoptysis in November 1936, radiography revealed a total collapse of the lower fourth of the right lung and a less complete similar condition of the lower portion of the right upper lobe. A similar collapse occurred four months later, even though the bronchi were not obstructed. In both of these two attacks of collapse the normal lung shadow reappeared soon afterward, showing that such transient atelectasis was not of cancerous nature and that the bronchi were

not obstructed. These two cases show that one must keep in mind the occurrence of such concomitant pulmonary collapse attacks in patients who have a bronchial cancer, in order to be able to estimate accurately the degree of invasion of the lung tissue in cases of pulmonary cancer.

Undulant Fever of Bovine Origin

One of the first cases of undulant fever of bovine origin in France was reported by Professor Ledoux of Besançon in 1928, and since then numerous cases have been observed in all parts of France. Between 1928 and 1932, twenty-five cases were found in three departments of that portion of France which is close to Switzerland. In a paper read at the May 25 meeting of the Académie de médecine Professor Ledoux and his associates reported seventy-two additional cases from the same three departments. In the majority of the seventy-two recent cases it was not difficult to trace the manner in which contamination took place, but in several there had been no contact with infected animals and no contaminated milk ingested. Nearly always, undulant fever of bovine origin is the result of lack of washing of the hands on the part of those who come in contact with infected animals. Undulant fever as seen in eastern France is of a milder type, as a rule, than that of southern France. However, severe infections with bone and liver complications have been seen. There is a likelihood that the disease will assume a more severe character in eastern France in the future, with the rapid increase in importation of sheep into this part of the country. The cattle will soon become contaminated by contact with infected sheep, and hence a strict control of all animals brought from other departments has become imperative.

BERLIN

(From Our Regular Correspondent)

June 19, 1937.

The Sickness Insurance Societies

By recent regulations, the duties of the supervisory medical consultants in the sick insurance, a group which already exert an influential rôle, are substantially expanded. This measure has long been contemplated. The status of the medical consultant is explicitly defined as that of a sociological-medical adviser to the insurance societies. One of the aims of this medical service is a harmonious accord between the conflicting interests of the individual insured person, the insured as a group and the societies themselves. Accordingly, the consultant becomes a sort of medical welfare worker and adviser to the individual insured who stand in need of help but he is legally prevented from making any unauthorized demands on or misusing the societies' funds. There should be the closest cooperation between the consultant and the insurance society. Since the physician is not yet regarded as an employee of the society, there exists no status of superior or subordinate between him and the society's officials. Each party is supposed to repose the fullest confidence in the other and to keep the other mutually informed by verbal communication. If an insurance official disagrees with the opinion or proposal of a medical consultant, he should inform the latter in person if possible of his dissension.

The consultant will render his professional opinion only in conjunction with his regular duties and according to his best medical judgment with due consideration of the legal requirements of the sick insurance. He must submit a detailed written report of all follow-up or verificatory examinations. The consultant must observe professional secrecy even after his services to the sick insurance have ceased, but this secrecy does not apply in his dealings with the insurance societies, the governmental health officials and so on; on the contrary, the consultant must supply the societies with all relevant data.

The duties of a supervisory medical consultant may be outlined as follows: 1. Follow-up examinations of persons incapacitated for work, judgment of the nature and extent of the disability and recommendation of special tests indicated. The consultant selects the patients for whom follow-ups are necessary from among persons claiming sick benefits and in the order designated by the society. In general, the insurance society obtains a case record from the attending physician; in urgent cases a report may be made by telephone. The attending physician is invited to participate in the follow-up examination. The attending physician is to be informed of the consultant's opinion and of any relevant observations with regard to diagnosis and recommended treatment. All statements by the consultant must be so phrased that the reputation of the attending physician will be safeguarded before the insured patient. The consultant must take especial care that his relations with attending physicians and with the League of Insurance Physicians of Germany remain free from needless friction and he must endeavor to cultivate cooperation. 2. Follow-up examinations at the request of the attending physician, to verify the diagnosis. 3. Advice, on request, with respect to admission of a patient to a hospital, a sanatorium, convalescent home or similar health station. 4. Supervision of the time a patient remains in hospital and so on. The consultant may examine the patient within the institution in the presence of the attending physician. At such examinations the authority of the attending physician must remain intact; the routine of the institution must not be interrupted except when absolutely necessary. 5. Opinions if requested on the feasibility of special procedures and of the use of therapeutic substances.

In addition, the medical consultant advises the insurance society on all questions pertaining to public health in general, especially by helpful suggestions with respect to the campaigns against tuberculosis, venereal diseases, cancer and deformities as well as with respect to the care of diabetic patients, the welfare of mothers and infants, eugenics and racial and social hygiene. He likewise supervises the care of patients who remain in their own homes. He must keep accurate records of his medical activities, including statistical tables and detailed transcripts of all prescriptions written.

News of the Universities and Student Bodies

Despite the fact that only a short time ago the universities and student bodies were reported on (THE JOURNAL, May 8, p. 1664, and May 15, p. 1728) several interesting new developments have occurred. A maximal quota of students is prescribed for the various universities with a view to a reduction of the number of matriculants. Of late the revision of the present arrangement of semesters has been discussed and it has been pointed out that the time required for academic training would be substantially shortened if a system of three terms per annum were adopted in place of the present two semesters. Such a change, it is urged, would in turn facilitate the earlier marriages of university graduates and assure a larger number of children of such marriages. Meanwhile the required time of attendance at the gymnasiums and so on, namely, the time spent at school before matriculation in a university, has actually been shortened by about a year. But now the national minister of public instruction comes forward with a rejection of the proposal to revise the present two semester schedule. He justifies his stand on the grounds that the members of the university faculties must first of all be allowed ample time in which to carry on their own research activities. Since teaching imposes a heavy burden on the professors and other faculty members, research activities can be carried on profitably and systematically only within a continuous period during which these men are relieved of teaching duties, and this period should be as long as is practically possible. In addition there fall within the so-called vacation period a number of examinations, excursions and scientific field trips which make demands on a professor's time. From the standpoint of the students' welfare

too a sufficient interval between semesters is necessary, since it can be spent in reviewing the material studied during the school year and in the acquisition of practical experience. In fine, the real danger to scholarly preparation and diminution of scholarly activities that inheres in any overburdening of either teachers or pupils must be guarded against.

All German students who contemplate matriculation in a university for the summer semester 1937 must submit beforehand to physical examination by a physician attached to the Nazi party's bureau of public health. A "health album" will be made out for each person examined and this document will consist in the main of data on the genetic background of the prospective matriculant's family.

By the terms of a recent decree issued by the minister of public instruction acting in collaboration with other high officials and with the foreign office, Jews of German nationality are no longer permitted to take the doctoral examinations and are thus automatically excluded from graduation. The honorary renewal of the diploma, long a customary part of a doctor's jubilee celebration, also is now denied to Jews. Jews of mixed blood may, however, take their degrees. For students of medicine and dentistry who are of Jewish extraction special provisions are made, since for them graduation can take place only subsequent to licensing as physicians and dentists. All persons classed as "Jewish hybrids" are afforded the opportunity to acquire the doctor's degree (but, as mentioned before, they may not be licensed as physicians or dentists) on condition that after passing the state examination they obtain permanent positions abroad. In such cases authentic proofs must be forthcoming that the position in question is already secure and permanent or that the prospects for obtaining such a post are certain. The candidate who receives his degree under the foregoing circumstances must be made to realize explicitly that he has no possible chance of securing a license to practice in Germany. The new decree also provides that the minister of public instruction himself shall examine the character of each doctoral candidate with particular regard to the candidate's political activities. Non-German Jewish hybrids are placed on a par with other foreigners and may obtain the doctor's degree in medicine without any condition. But persons who have been legally deprived of German citizenship through revocation of naturalization or otherwise do not enjoy the status of foreigners; not only is it impossible for persons in this category to receive a degree, degrees already held by them are automatically invalidated with the loss of citizenship.

As to actual university instruction, the idea of a free course of study for all students is under discussion. Perhaps a simplification of the complicated system of matriculation and tuition fees will be the next development.

The National Bureau of Student Guidance has been raised to the status of a main bureau of the Nazi party. The supervision of all German university students is thus incorporated within the party and the partisan control of student life consolidated.

In the place of the various student publishing bureaus there is now a single "Students' Press Service," which is the official news agency of the national bureau. The bureau purposes to carry on a reorganization of the universities and of the entire field of learning on the basis of the Nazi weltanschauung. The bureau interests itself in such matters as the reorganization of student academic affairs, the struggle for the "new pattern of existence" and the "new educational ideals of academic youth." In an article contained in the first number of the bureau's new student news publication it is stated that the selection of matriculants in the university will in future be based primarily on political considerations. To the selective process of former times, which was based on individual intellectual promise without regard to the collective national life is now opposed the present day method of selecting matriculants in the universities; namely, by way of the Hitler Youth, the work service and the army and navy.

The new student paper is also authority for the statement that at Heidelberg 67 per cent of the students belong to one or another of the Nazi organizations. This figure or one slightly lower may be regarded as average for the entire German reich.

Formerly the alumni of a university were accustomed to maintain relations with their student societies by membership in alumni associations of so-called old grads. Today there is but one recognized such alumni organization, the Nazi "Students' Campaign Auxiliary." This group constitutes a sort of students' benefit society, each member pays in a monthly contribution which goes to the aid of university students. This collection of funds from the alumni, in addition to being an idealistic gesture of cooperation, contributes materially to the formation of the new academic life. In April of this year, for example, the influx into the auxiliary took place at the rate of from 100 to 200 new members each day.

VIENNA

(From Our Regular Correspondent)

June 9, 1937.

Health Exposition in Vienna

A great health exposition called "The Foundation of Life and Health" opened in Vienna in May, to continue till the end of June. The enterprise was planned by cooperating groups including the Vienna department of health, the sick insurance and the pharmaceutical and chemical industries. The most important exhibit is that of the German Museum of Hygiene, Dresden. The Ministry of Public Health presents its exhibits under the title "A Healthy Citizen in a Healthy Country." Detailed diagrams, tables, charts, pictures and objects are used to illustrate the multifarious governmental activities in the fields of care of the health, preservation of health and restoration of health. Particular sections are gotten up to depict how the state seeks to protect the workers at various occupations, while other sections deal with public health service in general, institutions for the sick, and rescue methods. General and special welfare agencies also receive adequate representation. Among other exhibits of unusual interest are those of the Alpine Rescue Service, the Aerial Protection Service and the Food Inspection Commission. The Ministry of Public Instruction provides an array of posters, photographs and graphic charts, all of which serve to illustrate various aspects of the hygienic education of youth. This exhibit covers the successive phases of formal education from the kindergarten, through the elementary and secondary schools up to the university. Most instructive are the Ministry of Social Service Administration's demonstrations of the various methods of establishing the purity of a community's drinking water. This department also has on display an interesting collection of pictures and charts which illustrate the campaigns against various diseases. All these exhibits are enjoying a throng of visitors. The greatest interest, however, is evoked by the "glass man" from the German Museum of Hygiene. This exhibit, officially styled "The Miracle of Life," consists of a manikin so constructed as to permit a comprehensive idea of the wonders of the human organism. From supplementary diagrams and pictures and from the incredibly faithful preparations the visitor learns of the 222 bones which form the human skeleton, that four tibias are able to support the weight of eighty persons, and similar facts. A noteworthy model of the circulatory apparatus demonstrates how the heart keeps the organism supplied with blood and how the circulatory reflux takes place: a pump constructed in the exact form and proportions of the human heart drives a colored fluid representing the blood through tubes of red and blue glass corresponding exactly with the principal blood

vessels. By this device the work of the heart, which in three minutes pumps some 25 liters of blood through the body, is demonstrated with the utmost clarity. The astonished observer learns that in twenty-four hours a performance requiring many horse power is accomplished. A cube of 1 meter filled with the corresponding number of correctly shaped and colored imitation erythrocytes and leukocytes illustrates the number of blood corpuscles in a cubic millimeter. The million times over magnifications permit one to observe the actual mechanics of the blood and one learns that if all erythrocytes of one human organism were placed together end on end they would form a chain 200,000 kilometers in length (a distance equal to five times around the earth's equator). The finer structures of the lungs are shown by colossal magnifications of the alveoli and the observer is informed by the accompanying legend that each human being possesses 300,000,000 such pulmonary alveoli. In another section the anatomy and relative size of the brain are portrayed. Instructional models illustrate the anatomy and physiology of the auditory apparatus, including the labyrinth, and show how disturbances may arise within it. The sense of smell is only moderately developed in human beings. One learns that the olfactory surface in man is barely 250 square millimeters in area, whereas that of the dog, an animal endowed with an excellent sense of smell, is about ten times greater. In other representations of the human organism the onlooker is able by pressing a switch to illuminate the sets of interrelated organs and to study the fine structure and coordination of the various parts. There is also a consecutive series of human embryos and fetuses in transparent visualization which portray development from conception to parturition. The phenomenon of conception is illustrated by large pictures. There are also preparations of the finer histologic structure of the brain as well as a gigantic model of that organ in which more than 1,000 small colored lamps are connected in a maze of wires. Each wire represents a particular path of conduction; by pressing the corresponding button the related systems of nerve tracks become illuminated. Not only the layman but also the physician may profitably observe the various ramifications of the motor, sympathetic and reflex systems as well as the paths of nervous conduction which control speech, hearing and vision. This model alone is a real curiosity, a miraculously accurate histologic and pathologic representation of the brain.

In addition to the central section of the exposition there is an exposition of prophylactic hygiene in which is illustrated everything that contributes to the prolongation of human life. For the bulk of this material, eugenics is the dominant theme. There are exhibits on the care of children and adolescents, dental hygiene, proper nutrition, first aid in emergencies, social insurance and the study of the curative forces of nature: ultraviolet "emanations from ice and snow," for example. Every province of public health service likewise finds representation here. The importance of the modern sewerage system, the fight on disease, the care of premature infants, the comparative values of various foods and the milk and grain economies are brought before the visitor in an easily comprehensible form.

Medical "Jubilee Week"

A few days ago the Gesellschaft der Aerzte of Vienna, reputed to be the oldest and most renowned medical organization in the world, celebrated its centenary. Among its members have been most of the great physicians of the old Austria, men whose names are among the most illustrious in the history of medical science. The rôle of this society in the development of the entire medical field is too well known to be dwelt on here. Many of the most significant pioneering steps of medical research were first made known to the world in the sessions of this venerable body: the laryngoscope and total extirpation of the stomach and larynx by Billroth, cocaine as an anesthetic for the eye by Koller, the first utilization of roentgen rays for therapeutic purposes by Freund, the epochal discovery of the causes of puerperal sepsis by Semmelweis, and so on. In the 4,000 sessions of the Gesellschaft der Aerzte 15,000 demonstrations have taken place and 3,000 substantial reports submitted, all of which contributed to scientific research and an improved public hygiene. On the occasion of the society's centenary, a medical festival week was held during which the various scientific organizations centered in Vienna held extraordinary festival sessions. Eminent visitors appeared as guests at these meetings to deliver special jubilee lectures. The following list contains the names of the principal speakers and their topics: Professor Dr. de Langen of Utrecht, the circulation; Professor Verebély of Budapest, the biology of tumors; Professor Stoeckel of Berlin, radical surgery of the vagina; Professor von Mueller of Munich, the arthritic diathesis; Professor Clairmont of Zurich, pulmonary actinomycosis; Professor Sauerbruch of Berlin, the development of medical science in the nineteenth and twentieth centuries; Professor Wagner of Berlin, ovarian disorders; Professor Pfaundler of Munich, childhood pathology; Professor Wessely of Munich, myopia; Professor Kahler of Freiburg-in-Breisgau, tonsil problems. All these speakers are honorary members of the Gesellschaft der Aerzte. Besides these lectures there were other lectures and demonstrations by the active Viennese members. Professor Fraenkel discussed pathologic aspects of cancer, Professor Wagner-Jauregg the pathology and therapy of tabes dorsalis, and Professor Lorenz "The World Without Cripples." A surprise marked the session of the Society of Internal Medicine when Professor Leriche of Strasbourg discussed "New Trends in Surgery and Medicine," for his paper contained several novel observations made in research on the sympathicus.

The celebration was climaxed by the conferring of honorary doctoral degrees by the Faculty of Jurisprudence and Philosophy of Vienna University on the most prominent three members of the Gesellschaft der Aerzte: Professor Dr. Wagner-Jauregg, Professor Eiselsberg and Professor Horst Meyer. The scientists were extended official greetings from the government by the president of the republic and the mayor of Vienna. In addition to the academic functions the 600 visiting physicians were regaled with so comprehensive a program of receptions, balls, excursions and other social diversions that no visitor could possibly have left Vienna without a feeling of having been thoroughly entertained.

Marriages

VERNON ATWILL TURNER, Bristol, Tenn., to Miss Elizabeth Josephine Parsons of Crookston, Minn., at Bluefield, W. Va., April 30.

ADELBERT LEROY SPILLER JR., Grayville, Ill., to Miss Ann Scharp of Cleveland in Princeton, Ind., in May.

THADDEUS MARIA MCNAMARA JR., Bakersfield, Calif., to DR. VIRGINIA PETWAY of Atlanta, Ga., recently.

SEYMOUR FISKE to DR. CORNELIA FRANCES ROBERTSON, both of New York, in New Fairfield, Conn., July 3.

GEORGE BRONAUGH EWING, Smith's Grove, Ky., to Miss Anna Geraldine Keen of New York, May 29.

JOHN WALTER MARTIN JR., Cleveland, to Miss Evelyn Barbara Spears of Red Bank, N. J., June 29.

WILLIAM MARTIN SULLIVAN JR., to Miss Alice Elizabeth Campbell, both of Passaic, N. J., May 29.

JOHN MCCOLLOUGH SMITH, Morrilton, Ark., to Miss Marie Angehr of Clarksville, June 17.

OTTIS DEWEY SEABAUGH to Miss Dorothy Achilles, both of Webster Groves, Mo., June 5.

WHITMAN MEAD REYNOLDS to Miss Phebe Root, both of Greenwich, Conn., May 22.

CONAN JOHN PEISEN to Miss Almeda Garn, both of Des Moines, Iowa, June 18.

Deaths

William Joseph Hogan, Torrington, Conn.; Yale University School of Medicine, New Haven, 1898; member of the Connecticut State Medical Society; fellow of the American College of Surgeons; attending surgeon and chief, surgical staff, Charlotte Hungerford Hospital; consulting surgeon to the Litchfield County Hospital, Winsted; formerly member of the board of education, and health officer; aged 61; died, May 22, of arteriosclerosis and hypertension.

Reese Q. Lillard, Lebanon, Tenn.; University of Nashville Medical Department, 1890; University of Tennessee Medical Department, Nashville, 1891; formerly secretary and executive officer of the state board of health; member of the Tennesee State Medical Association; at one time United States Commissioner, director of the census and United States marshal for the Middle District of Tennessee; aged 74; died, May 3, in the Vanderbilt Hospital, Nashville.

Edward Warren Sikes, Freeport, Ill.; Hahnemann Medical College and Hospital, Chicago, 1902; member of the Illinois State Medical Society; president of the Stephenson County Medical Society; on the staffs of the Evangelical Deaconess Hospital and St. Francis Hospital; served during the World War; aged 61; died, May 5, in the Presbyterian Hospital, Chicago, of acute ascending suppurative hepatitis.

Gustave Lippmann ⊕ St. Louis; Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn, Prussia, 1892; formerly assistant professor of pediatrics, St. Louis University School of Medicine; member of the American Academy of Pediatrics; aged 68; on the staffs of St. Louis Children's Hospital and the Jewish Hospital, where he died, May 23, of carcinoma of the stomach.

Willard Mercer Lane, Washington, D. C.; University of West Tennessee College of Medicine and Surgery, Memphis, 1914; Howard University College of Medicine, Washington, D. C., 1916; assistant professor of surgery at the Howard University College of Medicine; on the staff of the Freedmen's Hospital; aged 50; died, May 10, in the Johns Hopkins Hospital, Baltimore.

Lucien Carl Feemster, Tupelo, Miss.; Memphis (Tenn.) Hospital Medical College, 1897; member of the House of Delegates of the American Medical Association in 1915; member of the Mississippi State Medical Association; past president of the board of health of Nettleton; formerly on the staff of the Tupelo Hospital; aged 64; died, May 25, of cerebral hemorrhage.

Daniel Francis Hayes ⊕ Chicago; Northwestern University Medical School, Chicago, 1912; assistant clinical professor of surgery, Loyola University School of Medicine; fellow of the American College of Surgeons; served during the World War; on the staffs of St. Anne's and Cook County hospitals; aged 48; died, May 11, of coronary thrombosis.

Charles A. Donaldson, Tucson, Ariz.; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1885; member of the American College of Radiology and the Arizona State Medical Association; formerly a practitioner in Minneapolis; past president of the Hennepin County (Minn.) Medical Society; aged 74; died, May 3.

Henry Harlan Langdon, Cincinnati; University of Cincinnati College of Medicine, 1925; member of the Ohio State Medical Association; acting superintendent of the Cincinnati General Hospital; served during the World War; aged 40; died, May 6, in the Christian R. Holmes Hospital, of teratoma of the testicle with metastases to the lung.

Warren C. Goodwin, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1902; assistant demonstrator of anatomy at his alma mater, 1906-1911; member of the Medical Society of the State of Pennsylvania; aged 73; died, May 24, in the Presbyterian Hospital, of hypertrophy of the prostate and pulmonary abscess.

Henry Milnor Joy ⊕ Calumet, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; past president of the Houghton County Medical Society; fellow of the American College of Surgeons; served during the World War; formerly member of the state board of medical examiners; aged 67; died, May 15.

William Bailey Murphy ⊕ Snow Hill, N. C.; University College of Medicine, Richmond, Va., 1903; past president of the Greene County Medical Society; at one time vice president of the Medical Society of the State of North Carolina; aged 59; died, May 4, in the Duke Hospital, Durham, of lymphatic leukemia.

Edward Genung Nugent ⊕ Rochester, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1897; past president of the Monroe County Medical Society; for many years on the staff of the Rochester General Hospital; aged 66; died, May 9, of arteriosclerosis and coronary occlusion.

Harry Griffith Hirschle ⊕ Canton, Ill.; Northwestern University Medical School, Chicago, 1912; served during the World War; past president of the Fulton County Medical Society; on the staff of the Graham and Murphy Hospital; aged 49; died, May 14, in Rochester, Minn., of pneumonia.

William McKee Johnstone ⊕ Morrisville, Vt.; University of Vermont College of Medicine, Burlington, 1906; past president of the Vermont State Medical Society; secretary of the Lamoille County Medical Society; aged 59; on the staff of the Copley Hospital, where he died, May 12, of pneumonia.

William Herbert Prescott, Franklin, Mass.; Harvard University Medical School, Boston, 1888; member of the Massachusetts Medical Society and the New England Society of Psychiatry; for many years connected with the City of Boston institutions department; aged 76; died, May 5.

Anna Isabelle McKamy, New Albany, Ind.; Northwestern University Woman's Medical School, Chicago, 1897; member of the Indiana State Medical Association; formerly on the staff of St. Edward's Hospital; at one time city health officer; aged 73; died, May 12, in Mattoon, Ill.

Edward Griffith Maupin, Portsmouth, Va.; University of Virginia Department of Medicine, Charlottesville, 1877; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1878; member of the Medical Society of Virginia; aged 86; died, May 18.

Clyde Robert McConnell, Dayton, Ohio; Ohio Medical University, Columbus, 1904; formerly member of the board of education of Deercreek township; on the staff of St. Elizabeth Hospital; aged 66; died, May 29, in the Miami Valley Hospital, of carcinoma of the pylorus.

John Henry Schaeffer, Philadelphia; Medico-Chirurgical College of Philadelphia, 1903; served in the medical corps as a member of the draft board during the World War; aged 61; died, May 17, in the Episcopal Hospital, of acute streptococcic pharyngitis and laryngitis.

Frank H. Lattin, Gaines, N. Y.; University of Buffalo School of Medicine, 1899; formerly health officer of the town of Gaines, and county coroner; for many years a member of the state legislature; aged 75; died, May 23, of cerebral hemorrhage and arteriosclerosis.

John Marion Hooper, Batesville, Ark.; Memphis (Tenn.) Hospital Medical College, 1896; member of the Arkansas Medical Society; county health officer; served during the World War; aged 67; died, in May, of injuries received in an automobile accident.

William Ethelbert McConnell ⊕ Pittsburgh; Harvard University Medical School, Boston, 1921; fellow of the American College of Surgeons; surgeon to the Western Pennsylvania and Montefiore hospitals; aged 42; died, May 16, of coronary occlusion.

Edward Brent Houston ⊕ Murray, Ky.; Louisville (Ky.) Medical College, 1907; past president and secretary of the Calloway County Medical Society; part owner of the Keys-Houston Clinic Hospital; aged 56; died, May 9, of cerebral hemorrhage.

Ira D. Kelsheimer ⊕ Paxton, Ill.; Northwestern University Medical School, Chicago, 1907; served during the World War; secretary and past president of the Ford County Medical Society; aged 57; died, May 29, of coronary thrombosis.

Cyrus Rutherford, Newman, Ill.; University of Pennsylvania Department of Medicine, Philadelphia, 1877; for many years a member and president of the school board; formerly mayor and county coroner; aged 86; died, May 2, of pneumonia.

Nathan Walser Mackie, Yadkinville, N. C.; Washington University School of Medicine, St. Louis, 1928; also a druggist; aged 37; died, May 21, in the Hugh Chatham Memorial Hospital, Elkin, of chronic nephritis and cirrhosis of the liver.

Carlton Rogers Jewett ⊕ Buffalo; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1881; for many years visiting physician to the Sisters Hospital; aged 85; died, May 20, of cerebral hemorrhage.

Jacob Dwight Harding, Ogden, Utah; Northwestern University Medical School, Chicago, 1907; member of the Utah State Medical Association; on the staff of the Dee Memorial Hospital; aged 61; died, May 5, of coronary occlusion.

Robert Crump King, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; member of the Illinois State Medical Society; aged 60; died, May 31, of heart disease.

James John McDevitt, Worcester, Mass.; University of the City of New York Medical Department, 1886; formerly police surgeon and a member of the board of health of Boston; aged 76; died, May 29, of pneumonia.

Enoch George Klimas, Philadelphia; Temple University School of Medicine, Philadelphia, 1915; formerly instructor in medicine at his alma mater; aged 49; died, May 11, of cirrhosis of the liver and chronic nephritis.

Robert Watson Hart ✠ Surgeon, U. S. Public Health Service, San Francisco; Medical Department of the University of Cincinnati, 1914; fellow of the American College of Surgeons; aged 47; died, May 18.

John H. Gregory, Eldorado, Ill.; Rush Medical College, Chicago, 1896; member of the Illinois State Medical Society; served during the World War; aged 63; died, May 23, of carcinoma of the stomach.

James Robert Gibson, Inman, S. C.; University of Tennessee Medical Department, Nashville, 1892; aged 70; died, May 16, in the Mary Black Memorial Hospital, Spartanburg, of coronary occlusion.

John Donald MacPherson ✠ College Point, N. Y.; University of the City of New York Medical Department, 1887; on the staff of the Flushing (N. Y.) Hospital; aged 76; died, May 2, of pneumonia.

Robert Yantis Littleton, Stout, Ohio; Hospital College of Medicine, Louisville, Ky., 1895; member of the Ohio State Medical Association; member of the local school board; aged 70; died, May 15.

Albert N. Legg, Philadelphia; Jefferson Medical College of Philadelphia, 1908; for many years on the staff of the Lankenau Hospital; aged 53; died, May 20, of pulmonary tuberculosis.

George C. Essick, Congress, Ohio; College of Physicians and Surgeons, Baltimore, 1893; aged 69; died, May 31, in the Kinney and Knestrick Hospital, Wooster, of chronic interstitial nephritis.

Lucian Rufus McCollom, New York; Long Island College Hospital, Brooklyn, 1897; aged 64; died, May 22, in a hospital at Port Washington, N. Y., of chronic myocarditis and arteriosclerosis.

David Michael Koontz, New Kensington, Pa.; Jefferson Medical College of Philadelphia, 1889; aged 73; died, May 1, in the Westmoreland Hospital, Greensburg, of cerebral hemorrhage.

Carl Eugene Neal, Cardington, Ohio; Starling-Ohio Medical College, Columbus, 1914; member of the Ohio State Medical Association; aged 46; died, May 4, of a self-inflicted bullet wound.

Edward Joseph Nook, Kalamazoo, Mich.; University of Michigan Medical School, Ann Arbor, 1930; city physician; aged 34; died, May 22, in the Borgess Hospital, of pneumonia.

John Ezra Myers, Springfield, Ohio; Medical College of Ohio, Cincinnati, 1880; past president of the Clark County Medical Society; aged 83; died, May 3, of cerebral hemorrhage.

Edman Payson Fish ✠ Waterville, Maine; Medical School of Maine, Portland, 1900; on the staff of the Sisters Hospital; aged 62; died, May 2, in La Grange, Fla., of aortic aneurysm.

Samuel Newton Burchfield, Titusville, Pa.; Chicago Homeopathic Medical College, 1887; aged 76; died, May 9, in St. Vincent's Hospital, Erie, of hypertrophy of the prostate.

George Thomas Mountford ✠ Coalinga, Calif.; Northwestern University Medical School, Chicago, 1909; served during the World War; aged 51; died, May 2, in San Francisco.

James LaFayette Houston, Comer, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1898; aged 65; died, May 23, of injuries received in an automobile accident.

James Smith McIlhenny, Washington, D. C.; Columbian University Medical Department, Washington, 1896; aged 72; died, May 25, in Birmingham, Ala., of coronary occlusion.

James W. Jones, Garfield, Ga.; University of Georgia Medical Department, Augusta, 1892; member of the Medical Association of Georgia; aged 71; died, May 17, of heart disease.

Calvin L. McCoy, Cleveland; Cleveland Homeopathic Medical College, 1901; aged 65; died, May 25, in the Grace Hospital, of hypertension and cerebral hemorrhage.

Adeline Eliza Colt Merriam, Hartford, Conn.; Bellevue Medical College of Massachusetts, Boston, 1881; aged 95; died, May 28, of chronic myocarditis and arteriosclerosis.

Jay W. Newell, Denver, Ind.; Kentucky School of Medicine, Louisville, 1880; member of the Indiana State Medical Association; aged 78; died, May 5, of heart disease.

Richard W. Bamber, Waterport, N. Y.; University of Buffalo School of Medicine, 1883; aged 83; died, May 9, of coronary thrombosis and cerebral hemorrhage.

Mattie Isabel Foster Hill, El Paso, Texas; University of Toronto Faculty of Medicine, 1892; aged 66; died, May 11, of cerebral hemorrhage and hypertension.

Charles Miesse ✠ Chillicothe, Ohio; Miami Medical College, Cincinnati, 1892; on the staff of the Chillicothe Hospital; aged 66; died, May 22, of pneumonia.

George Ramsdell Pancoast, Palmyra, N. J.; Jefferson Medical College of Philadelphia, 1884; aged 76; died, May 22, of chronic myocarditis and nephritis.

Ernest L. Haffner ✠ Fairport Harbor, Ohio; St. Louis College of Physicians and Surgeons, 1895; served during the World War; aged 65; died, May 5.

Albert N. Seidel, Cleveland; Cleveland Medical College, 1895; aged 68; died, May 4, in the Huron Road Hospital, of bronchopneumonia following a fall.

Wilbur Fisk Culpepper, Senoia, Ga.; University of the City of New York Medical Department, 1884; aged 80; died, May 17, of hypostatic pneumonia.

Jacob Goldenberg, New York; University and Bellevue Hospital Medical College, New York, 1903; aged 69; died, May 23, of coronary thrombosis.

Samuel J. Patterson, East Palestine, Ohio; University of Louisville (Ky.) Medical Department, 1895; aged 74; died, May 26, of cerebral hemorrhage.

Ringgold Scott Mitchell, Washington, Ind.; Kentucky School of Medicine, Louisville, 1888; aged 85; died, May 27, as the result of fracture of the hip.

Frank Elliott Kendall, Saranac Lake, N. Y.; University of the City of New York Medical Department, 1880; bank president; died, May 10.

Solomon Goldenkranz, New York; University of the City of New York Medical Department, 1888; formerly coroner; aged 69; died, May 17.

Walter Atlee Hickman, Marblehead, Mass.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; aged 63; died, May 13.

George Jesse Lund, Los Angeles; Rush Medical College, Chicago, 1882; fellow of the American College of Surgeons; aged 77; died, May 10.

John I. Groves, Champaign, Ill.; Hahnemann Medical College and Hospital, Chicago, 1880; aged 83; died, May 15, of mitral insufficiency.

Henry Benton Johnson ✠ Pomona, Kan.; Rush Medical College, Chicago, 1902; also a druggist; aged 66; died, May 7, of angina pectoris.

William Alexander Hatfield, Kokomo, Ind.; Curtis Physio-Medical Institute, Marion, 1895; aged 69; died, May 2, of pneumonia.

Robert Sidney Lucke, Omaha; Rush Medical College, Chicago, 1884; aged 74; died, May 1, in Santa Ana, Calif., of heart disease.

William A. E. Cummings, Glens Falls, N. Y.; Albany (N. Y.) Medical College, 1884; aged 77; died, May 5, of lobar pneumonia.

Julia E. Blaich, St. Louis; American Medical College, St. Louis, 1891; aged 66; died, April 11, of chronic interstitial nephritis.

Elmor C. Jefferies, Rea, Mo.; St. Joseph Medical College, St. Joseph, Mo., 1888; aged 78; died, May 9, of chronic myocarditis.

James Monroe Capps, Bakerville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1895; aged 72; died, May 4.

David Patton Burleson Jr., Spruce Pine, N. C.; Medical College of Virginia, Richmond, 1935; aged 27; died, May 16.

Daniel Phelan, Kingston, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1877; aged 83; died, May 2.

Gaily Barr Dunkle, Los Angeles; Jefferson Medical College of Philadelphia, 1897; aged 63; died suddenly, May 5.

Riley Park McElroy, Ada, Ohio; Baltimore Medical College, 1903; aged 66; died, May 13, of pneumonia.

Lewis Minort Daniels, Columbia, S. C.; Leonard Medical School, Raleigh, N. C., 1913; aged 46; died, May 2.

Carl Hagen, Silver City, N. M.; Hospital College of Medicine, Louisville, Ky., 1891; aged 78; died in May.

Sidney D. Lawson, Kansas City, Mo.; Ensworth Medical College, St. Joseph, 1908; aged 55; died in May.

Bureau of Investigation

PISO'S IN NEW RAIMENT

Piso's Labels Show Interesting Evolution in Nostrum Industry

"Piso's for Coughs," formerly "Piso's Cure for Consumption," "Piso's Cure" and "Piso's Remedy, a Medicine for Coughs and Colds," "prepares for winter" in a new, cream-colored package, according to the June 5, 1937, issue of *Drug Trade News*, a newspaper devoted to the drug industry. *Drug Trade News*, which reproduced the repackaged Piso's cough preparation, might (but, of course, it did not) also have reproduced the evolution of the Piso label, as shown by the accompanying illustrations.

The Piso remedy has long been known to the files of the Bureau of Investigation. Before the passage of the Food and Drug Act (1906), which specifically prohibits false statements in or on the trade packages of "patent medicines," Piso's was advertised as a "cure for consumption." After the act became operative, Piso's "cure" became "a medicine for coughs and colds."

Samuel Hopkins Adams, in his "The Great American Fraud" series, which ran in *Collier's* some years ago, said:

> "Piso's Consumption Cure, extensively advertised a year or two ago, is apparently withdrawing from the field, so far as consumption goes, and the Piso people are now more modestly promising to cure coughs and colds. Old analyses give as the contents of Piso's Cure for Consumption, alcohol, chloroform, opium and cannabis indica (hasheesh) . . . It is, therefore, another of the remedies which cannot possibly cure consumption, but, on the contrary, tend by their poisonous and debilitating drugs to undermine the victim's stamina."

The United States Department of Agriculture, on Feb. 8, 1913, published a report on an action filed against the Piso

The center picture is of a recent carton and bottle of Piso's; the others are much older, one calling the thing a "cure" and a later one, a "remedy."

Company in the District Court of the United States for the Western District of Pennsylvania by the United States attorney for that district. According to the federal report, analysis of the Piso nostrum showed the following results: "total solids, 65.32 per cent; sugar, 64.89; ash, 0.007; petroleum extract from acid solution, 0.084; chloroform extract from alkaline solution, 0.028; chloroform, 0.1866, chloroform in 1 ounce, 79/100 minim. The flavoring agents are methyl salicylate and chloroform, with indications of oils peppermint and bitter almonds."

Some years back, when Piso's Cure contained "½ grain extract cannabis indica, 5 minims chloroform and other valuable ingredients," Piso's was a "trustworthy remedy" in ". . . all diseases of the throat and lungs with symptoms simulating those of consumption . . ." Recommendations to "consumptives" by the exploiters of the "trustworthy remedy" included: "We earnestly recommend outdoor exercise, regardless of weather . . . If you are unable to take such exercise on horseback or on foot . . . exercise in a carriage . . ."

Also noteworthy was the statement "Medicines which cause expectoration must be avoided," when contrasted with a May 29, 1936, report of the Federal Trade Commission, which stated: "The Piso Co., Warren, Pa., agrees to stop asserting that 'Piso's for Coughs' is a competent treatment or effective remedy for coughs, unless the allegation is limited to the preparation's value as an expectorant cough mixture."

A Food and Drug Bulletin published by the North Dakota Regulatory Department for August 1933 describes Piso's for Coughs as a green syrup in a brown bottle, chloroform present, alcohol, none. Just what the "trustworthy remedy" contains today, only the Piso Company knows. And only the Piso Company would know how ". . . working internally, Piso's destroys the cold germs and breaks up infection . . ."

However, the Piso Company, Warren, Pa., has "repackaged its cough preparation, using a cream color. The bottle is by the Brockway Glass Company."

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Pinerva Pine-Needle Bath Salts.—Pinerva Laboratories, Inc., Milwaukee. Composition: Essentially baking soda (49 per cent), common salt (48 per cent), traces of pine-needle oil, and a red dye, with a small amount of water. For rheumatism, gout, etc. Misbranded because of fraudulent therapeutic claims and because represented to be composed essentially of substances derived from pine needles.—[*N. J. 24096; November, 1935.*]

Novak's Female Drops.—John Novak Co., Chicago. Composition: Essentially extracts of plant drugs including cramp bark, glycerin, alcohol (38 per cent) and water, flavored with clove oil. For female disorders. Fraudulent therapeutic claims.—[*N. J. 24067; November, 1935.*]

Novak's Oil.—John Novak Co., Chicago. Composition: Essentially alcohol (52 per cent), chloroform and wintergreen (each 5.7 per cent), menthol, oleoresin of red pepper, ammonia and water. For rheumatism, lameness, toothache, etc. Fraudulent therapeutic claims.—[*N. J. 24067; November, 1935.*]

Komet.—John Novak Co., Chicago. Composition: Essentially volatile oils including camphor, menthol and wintergreen, with turpentine oil (19.4 per cent), in a mixture of petrolatum and wax. For rheumatism, sciatica, lumbago, stiff neck, etc. Fraudulent therapeutic claims.—[*N. J. 24067; November, 1935.*]

Pyrol.—Kip Corp., Ltd., Los Angeles. Composition: Essentially petroleum and zinc oxide, with small amounts of carbolic and salicylic acids and essential oils, including wintergreen. For boils, "piles," ulcers, eczema, etc. Fraudulent therapeutic claims.—[*N. J. 24072; November, 1935.*]

Mastin's Vitamon Tablets.—Vitamon Corp., Mastin & Co., New York; James F. Stras, LaCrosse, Wis. Composition: Essentially yeast, calcium glycerophosphate (1.7 grains per tablet), calcium carbonate (1.7 grains per tablet), a small amount of an iron compound, nux vomica extract (0.2 grain per tablet), and a laxative plant extract. For "run-down" conditions, etc. Fraudulent therapeutic claims.—[*N. J. 24118; November, 1935.*]

Anti-Pyrexol.—Kip Corp., Los Angeles. Composition: Essentially zinc oxide, small amounts of carbolic acid and essential oils, including wintergreen, in an ointment base. "Antiseptic." Fraudulent therapeutic claims.—[*N. J. 24076; November, 1935.*]

Saratoga Ointment.—G. F. Harvey Co., Saratoga Springs, N. Y. Composition: Essentially zinc oxide, boric acid, and a small amount of eucalyptol, in a petrolatum base. "Antiseptic." Fraudulent therapeutic claims.—[*N. J. 24070; November, 1935.*]

Seavigor.—Seavigor Co., New York. Composition: Essentially seaweed. For "run-down" conditions, etc. Fraudulent therapeutic claims.—[*N. J. 24085; November, 1935.*]

Red Raven Splits.—Red Raven Corp., Red Raven, Pa. Composition: An artificially carbonated solution of sodium phosphate. For chronic constipation, biliousness, etc. Fraudulent therapeutic claims.—[*N. J. 24071; November, 1935.*]

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DIFFERENTIAL DIAGNOSIS OF MIGRAINE

To the Editor:—A white man, aged 50, complains of recurrent attacks of severe retching, vomiting and headache. He had fever on the ship on which he came to this country in childhood; he worked for many years over a coke oven in a candy factory; nothing else in the history is relevant. The attacks started ten years ago, at which time they came every year or two and lasted seven or eight hours. For the past two years the attacks have occurred about every two or three months, each attack lasting about twenty-four hours. A period of marked and increased belching precedes each attack for about ten days. The attack starts with frontal headache for five hours (accompanied by spots before the eyes), after which the retching and vomiting begin even though nothing is ingested. The vomitus consists of bile-stained fluid of small amount; vomiting is not projectile; there is no abdominal pain or soreness (except after the prolonged vomiting); the stools and urine are of normal color; there is no jaundice; the temperature is normal; examination of the eyegrounds, neurologic examination and physical examination give negative results. During the attack the blood pressure is 200/120, 190/100. In the interval between attacks it is 155/110, 140/100, 160/100, 140/90. There is no diarrhea. Deafness of the right ear was discovered accidentally about eight years ago; it is middle-ear deafness. The blood Wassermann reaction has been negative twice. Sometimes the patient has headaches and no vomiting attacks. There is rarely much or any nausea. The attacks are apparently becoming more frequent, and, since they incapacitate the patient for a few days each time, it would be desirable to prevent their recurrence.

M.D., New York.

ANSWER.—Under the circumstances one must rule out by a process of elimination such conditions as the gastric crises of tabes, cholecystic disease, intracranial neoplasm or aneurysm, paroxysmal hypertension, duodenal ileus and migraine. Less likely as possibilities are lead encephalopathy, hyperthyroidism, allergy, and carbon monoxide poisoning. The long duration of the complaint, without development meanwhile of objective signs of any real significance, would seem to exclude everything except disease of the gallbladder, duodenal ileus and migraine. As a matter of fact, the evidence favors migraine in a patient with a tendency to hypertension, even though the symptoms had their onset at a period in life later than usual and the pain is not unilateral. Granted that an adrenal paraganglioma can be excluded with reasonable certainty, the increased blood pressure at the time of the seizure might be the result of the pain and retching in a hyperreactive individual. The symptoms are not consistent with any form of heat injury, granting that he still works over a coke oven.

One should search for further clinical and roentgenologic evidence of duodenal ileus and cholecystic disease. A history of sick headaches in a parent, grandparent or sibling would strengthen the possibility of migraine, especially with the satisfactory exclusion of disease in the gallbladder and duodenum. Relief afforded by the hypodermic injection of ergotamine tartrate (1 mg.) at the onset of a seizure would be of further diagnostic value. Granted that the condition is not due to any demonstrable disease or toxemia suggested, treatment with the alkaloid or along other approved lines, with the probable inclusion of vasodilators, should be carried out.

SEBORRHEA OF SCALP IN WOMEN

To the Editor:—A blonde school teacher has a severe dry, scaly seborrhea of the scalp. The dryness and severity of the condition are aggravated, I believe, by too frequent visits to the beauty shop. Recently an area of alopecia about the size of a half dollar (30 mm.) has developed over the parietal area. Bearing in mind that she is very blonde and takes great pride in her appearance, will you kindly send me information concerning treatment that will be most efficacious. She has a permanent wave. Kindly omit name.

M.D., Iowa.

ANSWER.—Present-day modes of hair dressing are undoubtedly unhygienic. Pasting the hair down favors infection. Brushing, the most valuable form of massage, is prevented by the fear of disturbing waves. Argument is futile and the physician must work under this handicap.

An examination of the scales, both by direct soaking with potassium hydroxide and by culture on Sabouraud's medium, should be made before instituting treatment. If no unusual organism is found, try to persuade the patient to shampoo the hair Friday evening, followed by the application of a stimulating ointment such as salicylic acid 1 Gm., precipitated sulfur 3 Gm. and juniper tar 3 Gm. in sufficient rose water ointment to make 30 Gm. The ointment is to be rubbed in thoroughly in small amounts between the parted hair. On Sunday evening this can be washed out, and a lotion of chloral hydrate 6 Gm., resorcinol monoacetate 6 Gm., spirit of formic acid 20 cc. and sufficient spirit of myrcia to make 120 cc. may be applied once daily during the week. The ointment application is to be repeated the following week end. If this program is rejected, the lotion alone may be of some benefit. Instead of brushing, a thorough massage should be given the scalp once a day.

The patch of alopecia may be due to brittleness of the hair, in which case it will disappear as the scalp recovers its general health, or it may be a beginning alopecia areata. If it does not disappear with a few months of treatment, it should be given a dose of ultraviolet rays sufficient to cause a decided erythema followed by peeling. After peeling takes place, the treatment should be repeated with an appropriate increase in its strength.

If ultraviolet rays are not available, the bald spot may be painted with a mixture of one part of phenol to four of lactic acid. As soon as the skin recovers from one application, this is to be repeated.

The patient's general condition should be investigated and any abnormality treated.

BLOOD VOLUME INDEX

To the Editor:—Will you let me know the best method for determining the red cell volume index, especially in children; I mean the average size of the red cells in a patient as compared with their normal size. The methods of Haden and others are accurate but require a large quantity of blood and are therefore unsuitable for children. Sanford and Magath's volume index tube, though requiring a less amount of blood, is also unsuitable. If the Van Allen hematocrit tube is used, Stitt (ed. 8) advises that the blood, mixed with a "small quantity" of anticoagulant, be drawn up "until the bulb is about one-third full." I fail to understand why such vague amounts should be used in carrying out a delicate test. With the Daland hematocrit, in which no anticoagulant is used, it is not understood why the height of the red cells is to be multiplied by 2 for obtaining the volume percentage; moreover, the blood is apt to coagulate in these tubes. If the projection method is used, the cells at the periphery of the field are distorted and therefore give a wrong reading. Recently it has been given out that a Baltimore firm has developed a new method for obtaining more accurate results. In these circumstances, I would greatly appreciate a detailed description of the test that would be most satisfactory. Kindly omit name and address.

"IFFLEY," India.

ANSWER.—These objections to the projection method and to the Daland hematocrit are quite understandable. The height of the column of red cells in the latter was probably multiplied by 2 in order to obtain a figure roughly in proportion to normal.

With the Van Allen hematocrit, blood is drawn exactly to the top of the calibrated column and then a small amount of anticoagulant is added. The latter must be isotonic with the blood, but its amount need not be measured, for, during centrifugation, the red cells from an accurately measured amount of blood are thrown to the bottom of the calibrated portion of the tube and the height of this column is read. The chief source of error with the Van Allen tube is the difficulty of preventing leakage. The sealing device supplied is not always adequate even when fresh rubber pads are used. A more accurate method, which requires a minimal quantity of blood, has been described by Guest and Siler (*J. Lab. & Clin. Med.* **19**:757 [April] 1934), but this involves the use of a special centrifuge head and measuring microscope; the instrument described by Mason (*J. Lab. & Clin Med.* **20**:318 [Dec.] 1934) is somewhat more practical.

Perhaps the Baltimore method to which reference is made is the Wintrobe hematocrit (*Am. J. M. Sc.* **185**:58 [Jan.] 1933). This is a tube of uniform bore, sealed at one end, on which is etched a millimeter scale 10 cm. in height. Blood is first mixed with an anticoagulant (1.2 mg. of dry ammonium oxalate and 0.8 mg. of dry potassium oxalate, per cubic centimeter of blood) and then the tube is filled with the aid of a capillary pipet. Centrifugation is carried out at 3,000 revolutions per minute for thirty minutes. One cc. of blood is needed for this instrument. This amount can be obtained from the finger but is more easily secured by venipuncture. After the red cells have been packed completely the height of the column of red cells is read.

Whatever method for centrifugation may be used, the mean size of the red cells is determined by dividing the volume of packed red cells by the red cell count. The volume of packed red cells as measured in cubic centimeters per thousand cubic centimeters of blood, divided by the red cell count in millions, gives the "mean corpuscular volume" in cubic microns. Normally the mean corpuscular volume averages 87 cubic microns.

Values above 92 cubic microns indicate macrocytosis, those below 82 cubic microns microcytosis (Wintrobe, M. M.: Anemia —Classification and Treatment on the Basis of Differences in the Average Volume and Hemoglobin Content of the Red Corpuscles, *Arch. Int. Med.* **54**:256 [Aug.] 1934). It is better to express red cell size in this absolute measure, but one may still calculate the "volume index," which gives the mean red cell size in proportion to an arbitrarily fixed "normal." For volume index, 42.4 cc. per hundred cubic centimeters of blood is taken as the equivalent of 100 per cent packed red cells; that is, the volume of packed red cells as determined is divided by 42.4 and multiplied by 100. This gives the volume of packed red cells in proportion to "normal." This value, divided by the red cells in percentage of "normal" (red cell count divided by 5 and multiplied by 100), gives the volume index.

SPIDER BITES

To the Editor:—A number of spider bites have occurred during the last twelve months, most of which are of the black widow species. My textbook contains only short sketches of the spiders, the symptoms of their bites and the treatment. How can the species be determined—the one producing immediate severe constitutional symptoms and the one or more producing necrosis? What will relieve the pain of the black widow bite? Why should the bite of the black widow produce no constitutional symptom of any consequence in one patient when the bite was on the buttocks and bare skin? I administered calcium gluconate 10 per cent in the muscle and vein about one hour after the bite and no other drug was given. Where can I obtain a textbook on the American spider? I have found morphine almost useless in doses ranging up to 3 grains (0.2 Gm.) during a twenty-four hour period in the relief of pain. I have tried magnesium sulfate in the vein also with unsatisfactory results even when combined with morphine in heavy doses. Hot baths and local applications of heat also have been used. Must the patient suffer violently for a period of twenty-four to thirty-six hours or is there something more that can be done? One of my friends gave his patient antivenin or antiserum and this is now available. His patient did not get what he considered satisfactory results. Any suggestions as to treatment or other information will be appreciated.

THOMAS F. HUDSON, M.D., Luxora, Ark.

ANSWER.—Of all of the hundreds of species of spiders found in this country, it appears that Latrodectus mactans, or black widow spider, is the only one apt to produce severe systemic symptoms. A general description of the various kinds of spiders is contained in The Spider Book by John Henry Comstock, published in the Nature Library in 1920 by Doubleday, Page & Co., but a more recent monograph on spider poison is presented in Le venin des araignées, by J. Vellard, published by Masson & Cie in 1936. The literature on spider bite poisoning, with special reference to North America, may be found in three articles by Emil Bogen (*Arch. Int. Med.* **38**:623 [Nov.] 1926; *Ann. Int. Med.* **6**:375 [Sept.] 1932; *California & West. Med.* **45**:31 [July] 1936).

Latrodectus mactans is a shiny, coal black spider, usually brilliantly marked with red or yellow or both. The female, which is always the one responsible for the bites reported, is often half an inch in length and may stretch its slim, glossy black legs over as much as 2 inches. The markings vary somewhat, the most constant being a bright red patch, shaped like an hour-glass, on the ventral surface of the abdomen. Its unesthetic coarse, straggly, three dimensional web aids in its recognition.

Local lesions have been reported in some instances of black widow spider bite but are exceptional and may often be ascribed to associated infection, local treatments or special allergy or idiosyncrasy of the subject. On the other hand, the ejection of the poison is under control of the spider and does not occur with every bite, so that numerous instances are recorded in which the bite was not followed by any symptoms, local or general. Local necrotizing lesions have been reported most often from Glyptocranium gasteracanthoides of Peru, a gray orbweaver, and Aranea audax of Argentina, but in this country only a few instances have been reported from bites of the tarantula, the trap door spider or other large hairy forms, and spider bite as a cause of local lesions, although frequently suspected, has rarely been proved.

The intravenous injection of 10 cc. of 10 per cent calcium gluconate or other calcium salts, repeated as required, generally relieves the acute pain even more effectively than the intravenous injection of magnesium sulfate, which also has been recommended, but this may be supplemented by hot baths or hot applications, spinal puncture, and the administration of convalescent or immune animal serum. The inadequacy of opiates in controlling the acute symptoms of arachnidism has been repeatedly remarked, but sedatives may be useful in conjunction with the foregoing more specific treatments and in the care of the residual paresthesias that sometimes persist. Local treatment should be confined to a simple antiseptic application, as the scarification and cauterization or suction useful in other kinds of venomous bites seem to have no effect on the systemic development of arachnidism and only increase the danger of local infection.

POPLITEAL ARTERY PULSE—MOUTH AND RECTAL TEMPERATURES

To the Editor:—What is the proper method of obtaining the popliteal artery pulse? In what percentage of cases is it palpable? Is it the mouth temperature (of 98.6 F.) or the rectal temperature (of 99.6) that is considered "the normal temperature" of the body? Why are rectal thermometers marked to indicate normal at 98.6 when the real normal for that region is 99.6?

M.D., New York.

ANSWER.—The proper method of obtaining the popliteal artery pulse is to flex the knee, thus relaxing the popliteal fascia that overlies the artery. With the knee flexed, the palpating finger may be deeply pressed into the popliteal space at a point that marks the junction of the middle and upper thirds of the space. As a general rule the pulsations of the artery may be felt at this point unless they are obscured by an excessive amount of fat or, occasionally, by fluid in the popliteal bursa. It should be remembered that the artery is rather deeply situated, is covered by the vein and nerve, and is protected by a heavy fascia and fat and connective tissue; hence its pulsations are not as easily felt as those of much smaller arteries that are more superficially placed.

Strictly speaking, it is impossible to give any single figure that represents the "normal temperature of the body." This is true because the temperature of different parts of the body taken at the same time will show a variation and the temperature of the same portion of the body taken at different times during the day will show variation. When one speaks clinically of the normal temperature of the body, one actually means the normal temperature of the body in the places where it can be conveniently measured.

The measurement of the temperature, in degrees Fahrenheit, several times during the day in a large number of normal persons resulted in readings of 98.96 for the rectum, 98.45 for the axilla and 98.36 for the mouth. It should be remembered that these are averages and that the actual readings in the same person will sometimes vary as much as from 1.5 to 2 degrees in twenty-four hours. The mean of these averages is 98.59 and from this comes the figure 98.6 on the clinical thermometer. This figure represents the mean normal temperature of the body in those places in which it can be conveniently measured.

SYPHILIS IN PREGNANCY

To the Editor:—In October 1935 a married woman, aged 18, had an abortion at two months after taking a bus trip to West Virginia and back. The long trip seemed sufficient reason for the abortion. She made a good recovery from the abortion. In September 1936 she was referred back to me for a hazy left cornea (interstitial keratitis) and a Kahn test. This was 4 plus and she has been getting neoarsphenamine from September to December together with bismuth salicylate in oil. She reported pregnancy in October 1936 and her abdomen is now somewhat enlarged. In January 1937 I started mercurosal intravenously and will give it for a month or six weeks. Then I expect to return to neoarsphenamine and the bismuth compound. If her baby is apparently normal and at full term should she nurse it? I can find no other member of the family with a Kahn positive reaction. Perhaps it is an inherited condition in the patient. Please discuss the case. Please omit name. M.D., Michigan.

ANSWER.—It seems probable that this young woman has an acquired rather than a congenital syphilis and considering her age and recent marriage it is doubtless not an old infection. The absence of syphilis in the family is against congenital infection.

The abortion may or may not have been due to her syphilitic infection and, while most terminations of pregnancy due to syphiiis occur later in pregnancy, this is not an infallible rule.

She should be treated actively throughout pregnancy, as a recent infection is dangerous to the fetus. The percentage of fetal syphilis is much higher in women who have syphilis with a positive Wassermann reaction than in those in whom this test is negative. The treatment indicated should be adequate. Some believe that neoarsphenamine may be continued throughout pregnancy but others feel that there is danger of a serious reaction late in gestation and prefer the use of heavy metals in the later weeks.

When the infant is born, a cord Wassermann test should be done and if possible a roentgenogram of the long bones be made to diagnose any presence of a syphilitic infection. The positive cord Wassermann is a reliable test but the negative reaction is not conclusive and blood should be secured later for a repetition of the test. The examination of the placenta often does not give positive evidence either for or against the presence

of fetal syphilis. The safest course to pursue is to give the new-born infant a course of antisyphilitic treatment.

There is no reason why the mother should not nurse her baby so far as the transmission of this infection is concerned. Naturally the treatment of the mother should be carried to its conclusion after the baby is born.

The main objective of the treatment of the prospective mother is not so much to effect a cure in her as to prevent transmission of the disease to the fetus. A woman treated prior to pregnancy is less apt to give birth to a syphilitic infant than one in whom the treatment is begun after conception has taken place. The earlier in pregnancy the antisyphilitic treatment is started, the higher the percentage of favorable results for the fetus will be.

Once a woman is syphilitic, she should receive treatment in each successive pregnancy as there is always some possibility, though a diminishing one, that the fetus may be affected if antepartum treatment is not administered.

ERYTHROBLASTIC ANEMIA

To the Editor:—A boy, aged 13, is the only normal offspring; the two living children, a girl of 7 and one of 3 months, appear to have erythroblastic anemia (Cooley), and we are assured that the deceased boy and girl (aged 19 months and 3 years, respectively) were victims of the same disease. The parents are healthy Italians. They know of no relatives afflicted with the disease; their Wassermann reactions are negative. We are unable to discover any dietary deficiency or any intoxicating agent. The older child has received extensive x-ray therapy to the spleen, liver and long bones. She presents a muddy yellow color and a definite mongoloid facies. The recent appearance of these familiar characteristics in the youngest child prompted the mother to seek medical advice. In addition, the spleen is enlarged: in the older child it occupies about a third of the abdomen and is very hard and slightly nodular; in the infant it may be felt only during the inspiration and is moderately hard and smooth. There is no enlargement of the liver and only slight enlargement of the cervical lymph nodes in the older child. There are no other physical manifestations and the mother insists that there have been no other symptoms. The laboratory data are as follows:

Older child:

Red blood cells	1,955,000	Small lymphocytes	40 per cent
Hemoglobin	50%	Large lymphocytes	40 per cent
Color index	1.3	Neutrophils	44 per cent
Platelets	93,600	Eosinophils	0 per cent
Bleeding time	3 minutes	Basophils	0 per cent
Coagulation time	3 minutes	Neutrophilic myelocytes	16 per cent

The infant:

Red blood cells	2,785,000	Small lymphocytes	66 per cent
Hemoglobin	55%	Large lymphocytes	0 per cent
Color index	1	Neutrophils	24 per cent
Platelets	860,000	Eosinophils	0 per cent
Bleeding time	3½ minutes	Neutrophilic myelocytes	8 per cent
Coagulation time	4 minutes	Basophils	0 per cent
		Basophilic myelocytes	2 per cent

Blood smears of both children reveal numerous nucleated red blood cells (normoblasts and megaloblasts), polychromatophilia, stippling, anisocytosis and poikilocytosis. The fragility test and icterus index were not done. The urine and feces are normal in both cases. Roentgenograms of the skull of the infant reveal no abnormality, but the conditions found in the older child are fairly characteristic: the bony cortex is thin, and the medulla is considerably thickened with prominent trabeculations. No definite abnormality was observed in the long bones. We are looking forward to your opinion of the diagnosis and would greatly appreciate your suggestion as to the treatment of these cases.

D. T. MARTIN, M.D.
E. A. SCHNEXNAYDER, M.D.
Donaldsonville, La.

ANSWER.—This family of children belonging to the race that originated along the north shore of the Mediterranean presents a severe and progressive type of anemia. That the disease is familial and that all the children had markedly enlarged spleens and a mongoloid facies suggest erythroblastic anemia, or Cooley's disease. No mention is made of thickened and somewhat porous bones at the vault of the skull, though the other symptoms mentioned suggest the disease. Cooley concedes that polymorphism of the red cells is characteristic and that the presence of nucleated erythrocytes is one of the most striking features of the blood examination. He also believes that hemoglobin is destroyed by fragmentation and that it is irregularly deposited in the cells.

Cooley's disease must be differentiated from sickle-cell anemia or secondary anemias following malaria or hereditary syphilis. The familial nature of the disease, with anemia, splenomegaly and leukocytosis, and peculiar though characteristic changes in the blood should confirm the diagnosis of erythroblastic anemia which has already been made.

As far as treatment is concerned, the various remedies advised in anemia, such as iron, bone marrow and liver, have been administered by mouth, intramuscularly and intravenously. Transfusion and splenectomy have been tried. All methods of treatment up to now have given only symptomatic or temporary relief.

ALLERGY IN INFANT

To the Editor:—I have under my care an infant aged 20 months who presents the following problem: Shortly after birth he became covered with eczema and had numerous gastro-enteric upsets. The family history disclosed a maternal grandparent who suffered from bronchial asthma. The child is definitely allergic to milk, eggs, carrots and certain fish. He becomes markedly eczematous and has gastro-enteric disturbances within a day after eating any of the allergens. He has been fed on soy bean formulas (Sobee) and a generally restricted diet until the present time. Thus far he has progressed normally as regards, height, weight, dentition, walking and mental development. His skin remains clear and there are no abdominal symptoms while he abstains from the foods mentioned. My difficulty lies in the administration of vitamin D. The child becomes ill with any of the fish liver oils. Viosterol without natural oil produces the same result. Recently crystalline vitamin D was given him (Drysdol, Winthrop) with the same result. During the summer no particular difficulty was experienced as regards prevention of rickets, as the baby was kept outdoors whenever the sun was shining. During the winter I noted for the first time restlessness, rosary, head sweating and a tendency toward bowed legs. Ultraviolet irradiation has been used sporadically but the family cannot afford exposuress as often as necessary and have too much pride to accept this treatment at my expense. Have you any suggestions? Would violet irradiation alone suffice to cure this impending disease?

M.D., New York.

ANSWER.—It often happens that children may be allergic when young infants and then change as they grow older. One of the things that is difficult to overcome is prejudice that develops because parents, knowing that a child reacted to certain substances, do not want to try these later, at which time the baby may tolerate them.

In this particular case, concentrated vitamin D in small doses, gradually increased, should be tried again.

Ultraviolet irradiation alone will suffice to prevent and cure this condition. Drs. Alfred Hess, Steenbock and others have shown that a single erythema dose of ultraviolet rays once a week ordinarily prevents rickets.

To cure rickets, irradiation two, three or more times a week is necessary. Irradiated cereals, bread and other foods should be added to the diet. A disturbance of the calcium: phosphorus ratio increases the need for vitamin D so that it may be necessary to add extra calcium or phosphorus to the diet. In this particular instance it might be advisable to determine the serum calcium and inorganic phosphorus so that, if a low calcium is found, calcium gluconate or lactate may be given, 1 Gm. two or three times a day. If phosphorus is found to be low, acid sodium phosphate, 1 Gm. two or three times a day, should be given. It is assumed that the child has adequate vitamin C intake.

COBRA VENOM IN PARALYSIS AGITANS

To the Editor:—I have read recently in the press of Dr. Macht's cobra treatment of paralysis agitans and would appreciate some information regarding it.

NATHANIEL H. KOPLIN, M.D., Trenton, N. J.

ANSWER.—Cobra venom has been employed by French and other European investigators and by Macht and his collaborators in the United States for the relief of the severe pains of advanced malignant disease, neuralgias and chronic arthritis (Macht, D. I.: Therapeutic Uses of Snake Venom, *M. Rec.* **144**:537 [Dec. 16] 1936). Macht's pharmacologic studies on animals demonstrated that the drug produces analgesia through its action on the pain areas of the brain. He has also found that cobra venom antagonizes the convulsant action of certain drugs in animals (Macht: Experimental and Clinical Study of Cobra Venom as an Analgesic, Proc. Nat. Acad. Sc. **22**:61, 1936). Further studies along these lines supported the experimental work of Cicardo (Modifications de l'excitabilité nerveuse par action du venin de cobra, *Compt. rend. Soc. de biol.* **120**:732, 733, 1935) and suggested a trial of the drug for the relief of the severe pains due to contractures in advanced Parkinson's disease. In presenting this experimental work before the recent meeting of the American Physiological Society, Macht stated that six cases of Parkinson's disease, which he studied, responded favorably to the treatment. Relief was obtained in three patients complaining of severe pain and in all six cases there was an amelioration of spasticity and tremor. This investigation is still in its experimental stage. It must be understood, however, that cobra venom is in no sense a cure for paralysis agitans but should be regarded only as a new and nonnarcotic agent which may prove to be helpful in combating some of the distressing symptoms of the disease in its advanced stages, particularly the spastic rigidity and pain.

POSSIBLE MALINGERING OR FEVER OF UNKNOWN ORIGIN

To the Editor:—An unusually well and healthy girl aged 15 years, active, well built and well muscled, a dark brunette, and a vixen who knows far more about the ways of the world than her parents, has a fever of 102 to 103 F. about every two or three weeks which lasts from six to eight hours. Misbehavior is not remotely suspected. In these attacks she seems ill, goes to bed, and stays out of school for two or three days, saying that she is not sufficiently recovered to go to school. After the fever is gone she appears to me to be well enough to go to school. In a recent attack she stayed away from school for ten days. During her absence from school she helped her mother with the washing, drove around with her father in his truck, and cleaned the snow off the sidewalk, certainly not signs of being ill enough to miss school. The patient began to menstruate about eighteen months ago but has missed four periods at different times and reestablished them spontaneously. Pelvic examination gives the appearance of a diseaseless virgin. I removed the patient's tonsils two months ago because I felt that the operation was locally indicated: symptomless, large, diseased, chronic, hypertrophic tonsillitis, following a history of several attacks. Operation was done in my office with procaine hydrochloride and healing was rapid and uneventful. There was no other disease of the eyes, ears, nose or throat. The chest is well formed. There is no sign of disease, but just to check up, a chest roentgenogram was taken, which was normal. In the recent attack the Widal reaction was negative, the Kahn reaction was negative and the blood was negative for tularemia. The patient, not in my hands, had an appendectomy in one of these attacks a year ago. The abdominal pain was negligible at the time. The last two attacks have been accompanied by headache and pain in the back of the neck. Salicylates were given and recovery was complete, to my notion, in less than twelve hours, although not to the patient's notion. After the last attack, the red blood corpuscles numbered 5,400,000, the white blood corpuscles 8,500, the differential count was normal, and the hemoglobin value 15 Gm. The urine repeatedly has been normal. There are no abdominal symptoms or signs. There is no adenitis. Neurologic examination gives normal results. The skin is clear throughout, not even an acne being present. One reason besides the failure to find a physical basis for the attacks for my belief that she has some way to produce them is that they come when her mother has scolded her, when there is a written examination at school, or at some such time. The patient states that she does not take any drugs or do anything to produce the fever. The mother cannot find any drugs around the house. I watch the thermometer when it is in her mouth, but there is no need for this. The fever is there all right —her whole body is hot, her face is red and the pulse is around 120, but there is no sweating. I can only think of one legitimate explanation —the patient is very nervous in the attacks—possibly she involuntarily produces a fever through a nervous shock or whatever one might call such a phenomenon. The girl is very clever. I think she is fooling me. How is she doing it?

M.D., Michigan.

ANSWER.—The patient should be hospitalized for at least a long enough period to determine the presence of some organic physical disease. From the observations reported one cannot make a diagnosis of malingering. It is suggested that while the patient is being hospitalized the following regimen be instituted: absolute observation twenty-four hours daily; search her bed, table and belongings for any drugs or objects that may produce a rise in temperature. This is best done when the patient is taken out of her room on some pretext or other. The temperature should be taken rectally every three hours. Constant, diligent search should be made for evidence of Malta fever, abscess formation, sinus disease and low grade pyelitis, cystitis or kidney disease. She may have to be hospitalized for at least four weeks or more. If and when her method is determined, the entire mechanism of the behavior must be explained to her. It is unusual for a girl 15 years of age to refuse to go to school. Organic physical disease should not be overlooked.

EOSINOPHILIA

To the Editor:—I have recently discovered a decided eosinophilia in two members of the same family. In both of these cases the causes usually given for an eosinophilia can be ruled out. Might this be a familial characteristic? Could it be due to some chronic streptococcic focus of infection? Counts in the two cases range between 9 and 15 per cent. The reason for this query is more than mere medical curiosity, since in one of the cases I am trying to make a diagnosis of an obscure chronic condition. Any lead you may give me will be greatly appreciated.

HAROLD C. MILLER, M.D., Eglon, W. Va.

ANSWER.—To answer the specific questions first, it is not likely that this is a familial characteristic. Certain isolated instances of unexplained eosinophilia have been reported but it has not been observed as a familial trait. Likewise, chronic streptococcic infection is a most unlikely cause. As a general rule the eosinophils diminish or disappear in the presence of infection or intoxication and their reappearance is looked on as a favorable sign of recovery.

The question does not state which of the causes of eosinophilia may be ruled out in these cases.

Of the parasitic causes, trichinosis is the most common, but it is sometimes forgotten that the eosinophilia may persist for as long as two to three years following the infestation. Less common parasitic diseases encountered in this country are hookworm disease and echinococcic disease. Bilharziasis or filariasis is not likely to occur in a native of West Virginia. The ordinary intestinal parasites do not, as a rule, produce eosinophilia.

Allergic and so-called anaphylactoid states are commonly associated with eosinophilia. The most common of these are bronchial asthma and pollen sensitization, but the tendency runs through the whole group and any allergic state may be considered a sufficient cause. Urticaria, Quincke's edema, migraine and even dermographia are often so affected.

Many of the skin diseases provoke eosinophilia. It is frequently associated with psoriasis, and many observers have stated that any chronic dermatitis may be the causative factor.

Still more rarely, eosinophilia occurs in connection with myelogenous leukemia, and an eosinophilic leukemia has been described. Certain drugs, notably those which produce a skin rash, have been known to produce it. In a small percentage of cases of Hodgkin's disease and after x-ray treatment eosinophils may appear in relatively large numbers.

SEBACEOUS CYSTS

To the Editor:—I have a patient who has used massage cream on his face for years. He is a rancher and is exposed a great deal to the sun and has a light complexion. His face is covered with small and large collections of sebaceous material. However, there are no blackheads, as these collections of sebaceous material are covered with a thick layer of dead skin. What is the best method to relieve this man of his condition?

M.D., Texas.

ANSWER.—In view of the fact that "these collections of sebaceous material are covered with a thick layer of dead skin" one must assume, from the meager description given, that they are probably multiple sebaceous retention cysts (cystic acne?).

Puncture of one of these lesions with a fine knife, such as an iris knife, and the expression of the retained secretion should reveal the "wormlike" sebaceous contents. The cautious use in competent hands of fractional x-rays, 75 roentgens each week for from six to eight doses, may be effective in causing resolution of these lesions. Brisk washing with soap and water, preceded by contrast compresses of hot and cold water, is important treatment. The use of mild sulfur lotions such as lotio alba are further adjuncts to therapy. Creams or greasy applications to the face should be prohibited.

OSTEOGENIC SARCOMA

To the Editor:—A man, aged 50, generally in perfect health, recently suffered a mild contusion of the left knee just below the patella. The injury actually occurred about ten days before he came to my office. About three days after the original injury, the patient noticed some slight swelling in the knee, which extended both above and below the joint. The pain was slight and the movement of the knee was only slightly impaired. He continued his work, which was that of a common laborer. About three weeks after this injury the swelling had increased so that at this time the swelling was about twice the size of the normal knee. Roentgenograms were taken and it was discovered that in the distal end of the femur an apparently abnormal condition was present, which looked either like osteomyelitis or a bone tumor. Following this, a biopsy was done and the diagnosis by a competent pathologist showed it to be an osteosarcoma. Amputation in the upper third of the thigh was done. The patient recovered without subsequent complications. In going over the man's history, I find that fourteen or fifteen years ago he was kicked by a mule on this knee. It has never shown any signs of injury or disability of any sort. What in your opinion is the relationship of the sarcomatous condition of this bone to these two injuries? Is it possible or probable that the injury fourteen or fifteen years ago could have any relation to the development of the sarcoma at this late date?

M.D., Oregon.

ANSWER.—The exact etiology of osteogenic sarcoma is not definitely established. In a large majority of cases there is a history of previous injury at the site of the lesion, and this fact has led many authorities to believe that trauma may be the exciting cause. Similar injuries are incurred, however, by countless people without the development of sarcoma. Fractures of the long bones, which are severe and definite local injuries, are practically never followed by sarcoma.

Cohnheim's theory is that at some stage in the embryonic development the cell becomes isolated while still possessed of great energy of growth and of great potentiality to reproduce tissue. The cell may lie dormant for years and when stimulated may begin to grow rapidly (quoted from Campbell). Other authors believe that the origin of tumors lies in a profound change in the character of the cells. The majority of physiologists believe that bone is formed by a specially differentiated cell from the mesodermic layer, a mesoblast, whose only function is to form the tissues produced by the evolution of bone.

In the case described it is possible that the injury of fourteen years ago might have produced an alteration in some of the bone cells and that these cells were stimulated by the recent

injury, with the resulting sarcomatous proliferation. Any such theory, however, cannot be scientifically proved in this particular case.

The question of the relationship of malignant neoplasms to previous traumas is, of course, a subject of tremendous medicolegal importance, but it has not yet been definitely established.

HAY FEVER WITH NERVOUSNESS AND INSOMNIA

To the Editor:—I should like your advice concerning a case of hay fever. It is rather peculiar and I have not had much success with this patient. He has been troubled since 1925 with hay fever, which begins May 20 and ends June 20. He states that he is able to mark the dates on a calendar in that they begin precisely on the specified dates. He lived in Illinois until 1931, when he moved to Pittsburgh. There he was given irradiation to the nose, with marked improvement of his condition. In 1935 he moved to Virginia and last May he began to have skin lesions suggesting urticaria with evidence of angioneurotic edema; however he had gotten a shot of Ivyol for poison ivy several days before the eruption and swelling took place. He was given ultraviolet therapy and left for Philadelphia, where he was seen by a doctor who made skin tests. Several days ago I repeated the skin tests and the results were as follows:

Bermuda grass.....	2+	False ragweed.....	±
Goldenrod	±	June grass.....	4+
Lamb's quarters.....	3+	Timothy	3+
Orchard grass.....	3+	Oat	±
Johnson grass.....	1+	Chicken feathers.....	1+

The remainder of the tests were negative. However, the chief reason for his visit to me is apparently insomnia. He states that he must exhaust himself physically before he can get any rest. Physical examinations at several places have been relatively negative. I do not get the food reactions obtained in Philadelphia. I suggested a pollen mixture of the positive obtained with injections to begin immediately. Whether or not this will affect his insomnia I do not know. I should like any suggestions that you may care to offer. M.D., Virginia.

ANSWER.—Nervousness and insomnia have been described as among the "minor allergies," although allergy is to be considered an unusual cause for such symptoms. Presumably, other more common causes for insomnia have been ruled out in this case. If one is to assume, therefore, that hypersensitivity is the cause for the nervousness and insomnia, one must look to other causes than pollen as a source of the trouble, since the symptoms are present perennially. While pollen treatment (grasses) should be carefully used, this should be done because of the definite hay fever symptoms present.

Regarding the other allergic factors, the patient should be protected from feathers and possibly house dust by covering the pillows and mattresses in the room with a rubberized casing that is impervious to the finest dust. This should be constructed so that it is almost air tight. It is possible that the insomnia may be induced by stuffiness of the nose from the inhalation of allergens. (No mention is made whether the patient has perennial nasal symptoms.)

Since the skin tests with foods are reported negative, it would be advisable to continue the study by the use of elimination diets and the determination of the leukocyte reaction after certain foods, as milk, wheat and eggs. Literature on the subject of allergic study by elimination diets may be obtained in Albert H. Rowe's "Food Allergy" (Philadelphia, Lea & Febiger, 1931). The rationale and technic of the leukopenic index studies may be found in Warren T. Vaughan's recent publications on the subject (*J. Allergy* **5**:601 [Sept.], **6**:78 [Nov.] 1934, **6**:421 [July] 1935; *J. Lab. & Clin. Med.* **21**:1278 [Sept.] 1936).

PLAYING WIND INSTRUMENTS IN PULMONARY TUBERCULOSIS

To the Editor:—A patient who has been under treatment for pulmonary tuberculosis for the last three or four years has taken pneumothorax for the last two and one-half years and the condition now seems to be well arrested. He would like to play some wind instrument such as the saxophone and would like your opinion as to the advisability of his doing so. I understand that some sanatoriums have musical organizations including reed instruments. JOSEPH O. RUDE, M.D., Petersburg, Alaska.

ANSWER.—The nature and extent of the pulmonary lesion before artificial pneumothorax was instituted will influence the decision in this case. If it was a primary lesion in the pneumonic stage and is now well under control, almost any activity could be undertaken. On the other hand, if it was a secondary or reinfection type of lesion that showed evidence of progressiveness and cavities had formed, the playing of a wind instrument should be discouraged.

While it is true that, in occasional institutions for the tuberculous, orchestras and bands have been organized, such activities on the part of patients with pulmonary tuberculosis are not generally recommended. If the musicians are selected from patients who have extrapulmonary disease, such as that of the bones and joints, there could be no objection, provided the general health would permit of such activities. It is true that almost any clinician who deals largely with tuberculosis can cite instances in which persons with pulmonary disease have since played wind instruments extensively or have actually done considerable singing over the radio, while the diseased lung was collapsed by artificial pneumothorax and even after it has reexpanded.

After all, the main factor in the control of the tuberculous lesion is immobilization or minimum activity of the involved organ. While the patient's lesion is well arrested by artificial pneumothorax, there is the possibility that lesions are present in the contralateral lung which have not yet reached such proportions as to cast shadows on the x-ray film. These lesions may remain under control because of the natural defense mechanism of the body and never become clinically significant or roentgenologically demonstrable, but it would not seem wise to recommend activities that would require unnecessary use of the lung tissue. It would appear far safer to advise the patient against the use of any wind instrument.

VACCINATIONS FOR ORIENT

To the Editor:—A patient of mine contemplates a trip to Japan and China starting in August and would like preventive inoculations such as are available for whatever infections she might encounter on such a journey. I have already started typhoid-paratyphoid inoculations and shall revaccinate her against smallpox. Could you inform me as to what other preventive inoculations are available for what might be encountered in Japan and China? C. WENTWORTH HOYT, M.D., Hingham, Mass.

ANSWER.—No other preventive inoculations are customary for adults. If revaccination against smallpox is not immediately successful, it should be repeated several times until there is a high degree of probability that immunity actually exists. Since most of the health hazards in the Orient arise from contaminated food and water, the patient should be instructed to eat only freshly cooked foods and to drink only boiled water. Raw fruits and vegetables are particularly to be avoided.

TOXICITY OF VARNISH FOR BEER BARRELS

To the Editor:—I have under my care a man, aged 42, who is employed in a brewery. His job for the past two months for six hours daily, five days a week, has consisted of working in a beer standard (a wooden enclosed container holding twenty-two barrels of beer). He and another man varnish these standards and then burn the varnish in with blow torches. The only means of ventilation is a ventilator about 3 inches in diameter set in the roof of the standard; this is inadequate, and the fumes very rapidly become thick, so that after ten minutes of the work, they must lie down on the floor for fresher air. The varnish is supposed to be thinned with pure grain alcohol, but lately they have been given denatured alcohol to use, which, he has been told, will not do them any harm from the fumes liberated. Lately he finds that he has been gagging easily, is dyspneic on slight exertion, coughs up blood-streaked material in the morning, perspires freely, is quite weak, and has developed pain and tenderness to the left of the sternum. He has also lost 5 pounds (2.3 Kg.) in three months. General physical examination is negative. I should like to know what harm working in the conditions described can do to him and whether pure grain alcohol would be a safer diluent for the varnish. I would appreciate an early answer in your column.

M.D., Minnesota.

ANSWER.—Unfortunately the term "varnish" does not represent any one substance of fixed consistency. There are many classes of varnish with highly diversified ingredients, chiefly natural and synthetic gums as the solid portion of the varnish, which in turn are dissolved in or thinned by an even greater diversity of liquid agents. By way of example may be cited the constituents of one type of varnish: phthalic anhydride, fatty acids, glycerin, rosin, tung oil, hydrogenated naphtha, petroleum naphtha, xylene and butanol. Other types of varnishes contain comparable agents with respect to toxicity and may instead contain toluene and rarely benzene.

Compared with most of these substances, less harm may be expected from either pure grain alcohol or some classes of denatured alcohol. If these standards are in fact enclosed as described, the combined vapors from the constituents of almost any varnish are likely to be sufficiently concentrated to be dangerous. Furthermore, the use of blow torches as described for burning the varnish into the wood may be expected to give rise to additional harmful substances and particularly irritants to the eyes, mucous membrane and skin, in case high temperatures are utilized, such as may break down the solid constituents of varnishes. It is not believed that the mere changing of the thinning solution will be adequate for righting this situation. From the description of the operation provided in the query, it may be desirable that positive pressure respirators should be worn at all times during the varnishing procedure. The clinical manifestations indicated are of a type commonly asso-

ciated with mixed toxic vapors. If any substantial percentage of benzene, toluene and xylene or solvent naphtha is present as an ingredient and has produced harmful results, this may be shown in a leukopenia, together with an anemia. In any event, a careful blood examination should be made.

INFECTIOUSNESS OF SYPHILIS—INHERITANCE OF COLOR BLINDNESS

To the Editor:—1. I am frequently asked by the employer of a syphilitic patient, in whom the infection is newly acquired but untreated, when it is safe for him to return to work and, of course, associate with and eat with other employees. Granting that treatment is started, I have advised the employer that it is safer for the associate workers for the patient to be given about three injections of neoarsphenamine before he is allowed to return to work, and where the work consists of handling food, as in a restaurant, about six injections. I realize that many factors enter into these cases, but my question concerns the average case of early syphilis that is found in a clinic where most of the patients are WPA workers. I would appreciate your opinion as to the wisest course to follow for all concerned. 2. If the mother is color blind, does it necessarily follow that all her children will be color blind?

M.D., Virginia.

ANSWER.—1. The chances of acquiring syphilis from ordinary association are recognized as being remote. The disease is transmitted most frequently in the serous disch ges from primary or secondary lesions. The chances, therefore, of a patient with early primary syphilis transmitting the infection through food are not great. No arbitrary number of injections, however, can insure the noninfectiousness of the disease. It is probable that the proposed number of injections would be adequate to prevent any chance infection of healthy individuals.

2. No.

POTASSIUM CHLORATE IN DENTIFRICES

To the Editor:—What are the names of the dentifrices and gargles that contain potassium chlorate?

M.D., Massachusetts.

ANSWER.—This is a partial list of products which have been found to contain potassium chlorate:

Alkalol, the Alkalol Company, Taunton, Mass.
Anti-Vinzang, Remco Products Company, Fairmont, W. Va.
Dr. Cates' Cato Tooth Paste, Cato Chemical Company, St. Louis.
Gin-ga-sol, Gingasol Laboratories, Inc., Winner, S. D.
King's Ceko Dental Paste, C. G. King & Co., Providence, R. I.
Lorty Antiseptic Tooth Paste, B. F. Allen Company, New York.
Pebeco Tooth Paste, Lehn & Fink, Inc., Bloomfield, N. J.
Potaska, F. M. Pease & Son, Lee, Mass.
Pyo-Rem and Pyo-Rem Dental Cream, Pyo-Rem Chemical Company, Inc., Los Angeles.
Tonsiline, Tonsiline Company, Canton, Ohio.

These nonproprietary preparations also contain it:

Gargle of Potassium Chlorate with Iron, N. F. VI.
Tablets of Potassium Chlorate, N. F. VI.
Camphor, Potassium Chlorate and Belladonna Powders, P. R. B. II.
Troches of Potassium Chlorate, P. R. B. II.

SODIUM CHLORIDE INTAKE IN DIABETES

To the Editor:—How and where could I find some information regarding increased sodium chloride intake in diabetes and its effect on the disease and the patient?

M.D., Ohio.

ANSWER.—Recent reports by Glass and Beiless, McQuarrie, Thompson and Anderson, McLain and Wilder, and others, of the effect of increased intake of sodium chloride in diabetes are reviewed and references given in editorial articles "Diseases of Metabolism and Nutrition" by Wilder and Wilbur (*Arch. Int. Med.* **59**:342 [Feb.] 1937; **57**:429 [Feb.] 1936). Another study of the subject has appeared lately from D. Adlersberg and M. Wachstein (Pankreas und Kochsaltzstoffwechsel [Experimentelle und klinische Untersuchungen], *Klin. Wchnschr.* **16**:85 [Jan. 16] 1937).

ARTIFICIAL SCARLET FEVER IMMUNIZATION

To the Editor:—Please evaluate the present status of active artificial immunization against scarlet fever. Has immunization with scarlet fever streptococcus toxin been accepted by conservative authorities as a sound procedure suited to general application? Is it felt that there is risk of cardiac damage in children from the administration of scarlet fever toxin for purposes of immunization?

PAUL J. BRONSON, M.D., Terre Haute, Ind.

ANSWER.—Inoculation with scarlet fever toxin for the purpose of active immunization against scarlet fever is a procedure that has been accepted by most contagious disease hospitals. The method is used also in many general hospitals to protect student nurses and for large numbers of children housed in various institutions.

Health authorities in Milwaukee and in Gary, Ind., are enthusiastic in their approval of the Dick method for active immunization against scarlet fever. Private physicians often hesitate to recommend inoculations of scarlet fever toxin because of their fear of unpleasant reactions. If scarlet fever toxin is injected intracutaneously instead of subcutaneously, it is reported that satisfactory results are secured with smaller doses of toxin and no constitutional symptoms occur.

The possibility of cardiac damage as a result of the administration of scarlet fever toxin is seldom considered.

Scarlet fever toxin injections do not establish immunity to streptococcic infections.

ALTERATIVE FOR MAN AND DOGS

To the Editor:—A veterinary surgeon showed me an alterative and reconstructive veterinary preparation which he said was excellent for dogs, consisting of mercuric iodide, sodium iodide and sodium cacodylate. Would this be equally effective in man? Can you suggest a prescription in appropriate dosage for human patients, and a vehicle that would be pleasant?

J. B. H. WARING, M.D., Wilmington, Ohio.

ANSWER.—There is no incompatibility in the ingredients, and the following prescription might be suggested as possibly as pleasant a method of administration as might be devised:

℞	Mercuric iodide	0.075	Gm.
	Sodium cacodylate	1.5	Gm.
	Sodium iodide	10.0	Gm.
	Distilled water	20.0	cc.
	Syrup of acacia	60.0	cc.
	Syrup of glycyrrhiza to make	120.0	cc.

Label: One teaspoonful in milk three times a day after meals.

ANTIRABIC TREATMENT AFTER DOG BITE

To the Editor:—A child, aged 2½, was bitten by a dog on the nose and face. The wounds were deep and extensive. The dog was not thought to be mad, but the veterinarian who examined the dog would not make a positive statement to that effect. My advice was that, since there was some doubt, the child should be treated as though the dog were rabid. The wounds were cauterized with fuming nitric acid and dressed and the first dose of the serum was given. The injections were continued for six consecutive days. On the seventh day the veterinarian reported that the dog positively was not mad. I then stopped the treatment. Was I justified in my action or should I have carried the full fourteen doses to completion? I am unable to find any comment on this particular phase of the treatment in any of the literature.

M.D., Louisiana.

ANSWER.—On the assumption that the veterinarian's report is correct, there of course would be no point in continuing the injections. However, the period is entirely too short a time in which to rule out absolutely the possibility of rabies. All possibilities considered, therefore, the maximum safety would have been attained by completing the prescribed course of treatment.

NATURE OF WORMS IN DOGS AND DANGER TO MAN

To the Editor:—My dog is infested with worms, as proved by the examination of a veterinarian. He found the adult worms or the ova of the roundworm, tapeworm and hookworm. Are these worms identical with the roundworm, tapeworm and hookworm found in man? Is there any danger of human infestation from such a dog?

M.D., Iowa.

ANSWER.—Intestinal worm parasites that infest dogs are not identical with those found in man. Observations made by many veterinarians tend to show that there is no danger of contaminating human beings with canine parasites where good hygiene prevails. However, for the protection of infants and young children, veterinarians advise keeping canine pets free from parasites.

INHERITANCE OF BLUE EYES

To the Editor:—If both mother and father have blue eyes, does it necessarily follow that all their children will have blue eyes? Are there any cases on record in which this is not the case?

M.D., Virginia.

ANSWER.—Genetically speaking, blue eyes are blue because they lack pigment in the front of the iris. If in the eyes brown pigment is present, even if it cannot be detected except with the aid of a microscope, such eyes are genetically "brown." It is difficult for any but an expert to distinguish blue eyes from some of the lighter types of "brown" eyes, such as grays or greens. If both parents have blue eyes in the genetic sense they can have only blue eyed children. It would be unwise for persons other than experts to attempt diagnosis of blue eyes in cases in which apparent exceptions to the rule occur.

TREATMENT OF YAWS AND PELLAGRA

To the Editor:—Kindly advise me whether bismuth compounds and/or neoarsphenamine would be indicated in the treatment of yaws? Would bismuth compounds and/or neoarsphenamine be indicated in the treatment of pellagra?

D.D.S., California.

ANSWER.—Bismuth compounds and neoarsphenamine are indicated in the treatment of yaws but not in pellagra.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 28. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, Sept. 13. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: *Basic Science.* Tucson, Sept. 21. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson.

ARKANSAS: *Basic Science.* Little Rock, Nov. 1. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular).* Little Rock, Dec. 20. Sec., Dr. L. J. Kosminsky, Texarkana. *Medical (Eclectic).* Little Rock, Dec. 21. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: Sacramento, Oct. 18-21. Sec., Dr. Charles B. Pinkham, 420 State Office Building, Sacramento.

CONNECTICUT: *Basic Science.* New Haven, Oct. 9. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Dec. 27-28 (probable dates). Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, Nov. 15-16. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, Oct. 12-13. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 5. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, Oct. 19-21. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

KANSAS: Topeka, Dec. 14-15. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, Dec. 7-9. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MARYLAND: *Medical (Regular).* Baltimore, Dec. 14-17. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic).* Baltimore, Dec. 14-15. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Lansing, Oct. 13-15. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, Oct. 5-6. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Oct. 19-21. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, Dec. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: Helena, Oct. 5-6. Sec., Dr. S. A. Cooney, 205 Power Block, Helena.

NEW HAMPSHIRE: Concord. Sept. 9. Sec., Board of Registration in Medicine, Dr. Fred E. Clow, State House, Concord.

NEW JERSEY: Oct. 19-20. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 11-12. Sec., Dr. Le Grand Ward, Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Oct. 4-7. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

OHIO: Columbus, Dec. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, Dec. 8. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Medical.* Portland, Aug. 24-26. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science.* Portland, Nov. 20. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PUERTO RICO: San Juan, Sept. 7. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

VERMONT: Burlington, Feb. 8. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, Dec. 8-10. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WISCONSIN: *Basic Science.* Madison, Sept. 25. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Madison, Jan. 11-14. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, Oct. 4. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the *National Board of Medical Examiners and Special Boards* were published in THE JOURNAL, July 31, page 382.

Connecticut (Homeopathic) March Examination

Dr. Joseph H. Evans, secretary, Connecticut Homeopathic Medical Examining Board, reports the written examination held in Derby, March 9, 1937. The examination covered 7 subjects and included 70 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
New York Medical College and Flower Hospital		(1936)	88.9
Hahnemann Med. College and Hospital of Philadelphia		(1936)	78.5,* 80.3, 83.4*

* License has not been issued.

Kansas June Report

Dr. J. F. Hassig, secretary, Kansas Board of Medical Registration and Examination, reports the written examination held at Topeka, June 15-16, 1937. The examination covered 10 subjects and included 115 questions. An average of 75 per cent was required to pass. Seventy-six candidates were examined, all of whom passed. Ten physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1937)	88.4, 90.6
School of Medicine of the Division of the Biological Sciences		(1936)	89.7
University of Kansas School of Medicine		(1937)	79.3, 81.9, 82.2, 84.6, 84.7, 84.7, 85.1, 85.4, 85.6, 85.8, 86.3, 86.3, 86.4, 86.6, 87.2, 87.3, 87.3, 87.4, 87.5, 87.6, 87.6, 87.6, 87.7, 87.7, 87.8, 88.1, 88.2, 88.2, 88.2, 88.3, 88.3, 88.4, 88.6, 88.6, 88.7, 88.7, 88.7, 88.8, 89.2, 89.2, 89.2, 89.2, 89.2, 89.2, 89.3, 89.3, 89.5, 89.6, 89.7, 89.8, 90, 90.1, 90.2, 90.4, 90.5, 90.6, 90.7, 91.1, 91.1, 91.1, 91.2, 91.7, 93, 97.5, 98.7, (1937, 2)*
Creighton University School of Medicine		(1937)	88.9
University of Nebraska College of Medicine		(1936)	86.9
New York University, University and Bellevue Hospital Medical College		(1934)	86.9
Baylor University College of Medicine		(1937)	87.4, 89.1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine		(1936)	Colorado
Chicago College of Medicine and Surgery		(1917)	Illinois
Northwestern University Medical School		(1934)	Illinois, (1935) Michigan, Missouri
State University of Iowa College of Medicine		(1933)	Iowa
Washington University School of Medicine		(1934)	Missouri
Creighton University School of Medicine		(1935)	Nebraska
University of Pennsylvania School of Medicine		(1934)	Missouri
University of Texas School of Medicine		(1917)	Texas

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Washington University School of Medicine		(1930)	N. B. M. Ex.

* Average grades not reported.

Book Notices

The Thyroid and Its Diseases. By J. H. Means, M.D., Jackson Professor of Clinical Medicine, Harvard University, Boston. Being an Account Based in Large Measure on the Experience Gained in the Thyroid Clinic of the Massachusetts General Hospital. Cloth. Price, $6. Pp. 602, with 73 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1937.

Although the preface to this monograph states that it is in no sense an encyclopedic treatise on the subject and represents only the personal experiences of a considerable group of workers in a single thyroid clinic (that of the Massachusetts General Hospital), this book cannot be said to lack in completeness. The motive behind the work of the clinic has always been twofold: to care for the patient in the best possible way and to learn from him something new about his disease. These purposes, of course, coincide perfectly with the highest type of medical practice and clinical research. The initial fundamental discussion of the thyroid and its diseases takes up about one fourth of the book. The gross and microscopic anatomy of the gland, the chemical nature and actions of the hormone so far as known, the relation of the thyroid itself to other endocrine glands and the pathology are considered in detail. The general symptomatology of disturbances of the thyroid and the methods of examination for thyroid disease are perhaps especially useful to medical students and to those physicians who have need to refresh themselves on the present methods of approach to thyroid disease. Specific disorders are considered in a number of chapters on simple goiter, myxedema, toxic goiter, nodular goiter, malignant goiter and thyroiditis. The grouping of the subjects is satisfactory and each chapter is closed with a brief summary and bibliography, which includes probably all the more important publications on that particular subject. The surgery of toxic goiter includes no detailed description of surgical technic but contains many points of importance for the medical and surgical preoperative and postoperative care, the operation itself and the anesthesia. In the final chapter, on fact and fancy in matters thyroid (a term which the author does not like very well), some luxury is allowed in attempting to forecast some of the future lines along

which thyroid investigations may proceed. This is a satisfactory addition and might well even be expanded in the future. Certainly no physician dealing with thyroid diseases can afford to be without this monograph.

The Little Things in Life: The Vitamins, Hormones, and Other Minute Essentials for Health. By Barnett Sure, Ph.D., Professor of Agricultural Chemistry in the University of Arkansas. Cloth. Price, $2.50. Pp. 340. New York & London: D. Appleton-Century Company, Incorporated, 1937.

The late Lafayette B. Mendel of Yale often referred to certain food substances such as vitamins and inorganic salts as "the little things" in nutrition. The author has made use of the same thought in the title of the present volume. The subject matter comprises a description of the vitamins, hormones and other substances which, in small amounts, are essential to life. The book is written in nontechnical terms, primarily for the public. A glossary of medical terms is appended. In general the information provided is sound and technically correct. The author presents an interesting historical account of the modern developments in the field of vitamins. A long chapter is devoted to a description of the use of vitamin preparations in various ailments. The author concludes that considerably more clinical evidence will have to be available as a guide to the medical practitioner before he will know definitely the value of vitamin preparations in the treatment of diseases other than the well known deficiency diseases. Tables of the vitamin content of foods are included, but these are of the older type which denote the relative amounts of the vitamins present by plus and minus signs. The chapters on hormones and on topics other than the vitamins are not as authoritative as they might be. The chapter on allergy appears to be inadequate for the importance of this subject and in relation to the other topics in the book. There are probably many more persons who are treated for hypersensitivity toward some substances than are treated for vitamin deficiency. On page 119, goat milk is erroneously reported to be much more digestible than cow's milk. The author acknowledges the assistance of Professor Hastings of the English Department of the University of Arkansas for help in editing a great portion of the manuscript. One wonders if some of the definitions presented in the glossary have been given as careful attention as the greater part of the text. Acidosis on page 323 is defined as "an acidic state of the blood and tissues symptomatic of some other disturbance in the body which upsets the normal acid-alkali balance." The book on the whole is well organized about the author's central theme, which is "Since they can make or break the human organisms, the little things in life actually are the big things in life."

Diseases of the Newborn. By Abraham Tow, M.D., Adjunct Professor of Pediatrics, New York Polyclinic Hospital and Postgraduate Medical School. Cloth. Price, $6.50. Pp. 477, with 53 illustrations. New York: Oxford University Press, 1937.

Unlike the many textbooks written about certain other medical subjects, there has been a real paucity of those confining their subject matter to diseases of the new-born. There has been a tremendous increase in medical interest in the new-born during the past ten years owing to a considerable extent to the fact that the pediatrician has assumed more and more the control of the nursery services; that is, the infant from the time of birth. As a result, a voluminous literature has developed. The author states that the volume is an attempt to organize this material and to present it in such a fashion that it will be of service to the general practitioner, the obstetrician and the pediatrician. The author has had years of experience in the new-born service at the New York Polyclinic Hospital and so in discussing a controversial subject he expresses his opinions in an attempt to clarify the matter. These opinions are well balanced and logical and coincide with the ideas of the majority of pediatricians. The textbook is concise yet complete, and the style of writing makes for easy and interesting reading. It is well illustrated and on good paper. The table of contents and index are detailed so that a small item can be looked up quickly. An excellent and detailed bibliography is appended to each chapter. The discussion is confined to the first month of life except where it is necessary to extend it for purposes of clarification. The book includes, besides diseases of the new-born, a chapter on general considerations of the normal new-born, another on the premature infant and still another on infant feeding during the first month. There is a discussion of the hypoglycemic cyanosis and convulsions of infants born of diabetic mothers and its treatment, a subject only recently creeping into pediatric literature. The author plainly, firmly and logically states his position on controversial points such as the treatment of intracranial hemorrhage.

Funktionelle Pathologie: Eine klinische Sammlung von Ergebnissen und Anschauungen einer Arbeitsrichtung. Von Dr. Gustav von Bergmann, ordentl. Professor der inneren Medizin und Direktor der II. Med. Universitätsklinik Berlin. Second edition. Paper. Price, 25 marks. Pp. 547, with 73 illustrations. Berlin: Julius Springer, 1936.

This is the revision of a book which early established itself as a useful volume in this field. It begins with a chapter entitled "Klinische Reformation," in which the author points out that conditions have changed considerably in Germany and that the whole future depends on keeping the German people in health—this to be assumed as a holy task. The book is a collection of available data dealing with functional pathology based on studies of the available periodical literature. As with most German books, the references are frequently to medical preparations which have no standing and no use in the United States. The final chapter is largely concerned with psychic effects on human function, the volume concluding with emphasis on the fact that modern medicine depends on the consideration of the human being invariably as a social organism. The book is a beautiful illustration of the great difficulty under which the modern German scientist labors to steer a suitable course between scientific and political influences.

Accidents and Their Prevention. By H. M. Vernon, M.A., M.D., Member of the Technical Advisory Board, National Institute of Industrial Psychology, London. Cloth. Price, $5. Pp. 336, with 61 illustrations. New York: Macmillan Company; Cambridge: University Press, [n. d.].

This book should be read by all who are interested in the subject of safety, since it presents a comprehensive study of accidents of many kinds, on the road, at home, at work, at play, with an account of preventive methods already used and suggestions for further methods of avoiding accidents. Numerous charts and graphs furnish clear cut analyses of important factors in accidents. A particularly interesting feature is that comparison of accidents in various countries permits a better analysis of accident causes and the results of different methods of prevention. A discussion of susceptibility to accidents is particularly valuable. It is clearly shown that a small percentage of people have most of the accidents and that psychologic tests for accident proneness have definite value. These tests are not always conclusive, however, so it is advisable to keep accurate records of all accidents, even the most trivial. These records are probably the best means of identifying the accident prone individual. A relationship between physical condition of an individual and accident proneness is important, since some easily determined conditions, such as high blood pressure, impaired vision, obesity and alcoholic indulgence, are associated with a high accident rate. The discussion of traffic accidents is unusually comprehensive and is important to all who are interested in traffic safety. The value of education in preventing accidents is shown by the decreasing rate among school children compared to the increase among adult pedestrians. The author closes with a statement that from 50 to 90 per cent of accidents are preventable by legal control or education.

Physicians and Medical Care. By Esther Lucile Brown, Department of Statistics, Russell Sage Foundation. Boards. Price, 75 cents. Pp. 202. New York: Russell Sage Foundation, 1937.

This is a helpful compilation of information not readily available in any other single work. The survey of medical education traces stages in its evolution, describes the work of the American Medical Association and calls attention to the weakness of the present curriculum, with regard to obstetrics, psychiatry and medical economics. The growth of graduate education in recent years is emphasized, and the recent provisions for certification of specialists are described. There is a tendency in the discussion of graduate work for practicing physicians to follow previous writers in ignoring the fact, which is briefly

mentioned, however, that such education in organized form is only twenty years old and can scarcely be expected to have reached and benefited all practicing physicians. There is a brief history of the growth and work of the various councils of the American Medical Association, and the conventional criticism that "Its Journal has appeared to be opposed to many honest experiments that were being undertaken by groups of physicians and foundations in the interest of more extensive medical service." There is no recognition of the fact that the various branches of the Association are conducting, under principles laid down by the House of Delegates, more experiments than all the foundations and similar organizations in existence. A treatment of the number of physicians and the demand for their services makes use of some unreliable statistics of the Committee on the Costs of Medical Care, although the writer quotes from publications of the Bureau of Medical Economics in which these errors are corrected. It is perhaps unfair to criticize the position, which has been so generally adopted by others, that the distribution of physicians according to the population of the towns in which they are located measures the availability of medical service. The material of the Committee on the Costs of Medical Care which is used in describing groups has also been shown to be inaccurate. There is a description of some of the plans for low income groups developed by medical societies, and the book closes with at least a partial endorsement of compulsory health insurance, in which the position of the American College of Surgeons, the Michigan State Medical Society and the California Medical Association is somewhat inaccurately reported. In spite of these defects, the book represents a decided improvement over most of the writings on medical matters issued by foundations.

Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Die Hirnkammerformen bei Hirntumoren. Von Dr. Otto Dyes, Dozent für Röntgenheilkunde, Würzburg. Fortschritte auf dem Gebiete der Röntgenstrahlen, Ergänzungsband LII. Herausgegeben von Prof. Grashey. Paper. Price, 16 marks. Pp. 79, with 105 illustrations. Leipzig: Georg Thieme, 1937.

This brief monograph deals with the shape of the cerebral ventricles as affected by tumors of the brain. The ventricles were visualized by roentgenograms after they were filled with air, a procedure which the author, in accordance with German usage, persists in calling the Bingel-Dandy method although priority for both encephalography and ventriculography seems to belong clearly to Dandy. After a preliminary chapter on the normal form of the ventricles, which follows closely the work of Torkildsen, the various alterations that are caused by tumors of the brain are clearly outlined and numerous illustrative cases from the clinic of Tönnis are reported. Although there is nothing new in this material, dealing as it does with matters familiar to the workers in all the large clinics of this country and to every roentgenologist, the presentation is clear and systematic and the work should be useful to roentgenologists and neurosurgeons.

Medicolegal Cases: Abstracts of Court Decisions of Medicolegal Interest 1931-1935. Compiled by the Bureau of Legal Medicine and Legislation, American Medical Association. Cloth. Price, $5.50. Pp. 888. Chicago: American Medical Association, 1936.

Abstracts of important court decisions of medicolegal interest have been published in THE JOURNAL since about 1900. Some years ago, in response to recurrent demands for the republication of the abstracts in book form, an initial volume was prepared embodying abstracts that had appeared in THE JOURNAL during the calendar years 1926 to 1930. The present volume contains the abstracts that were published during the calendar years 1931-1935 inclusive. It constitutes, as did its predecessor, a mine of medicolegal information of civil and criminal interest. A comprehensive seventy-three page index makes readily available all the important points in the approximate 900 court cases abstracted. Anesthetics, autopsies, compensation of physicians, dental practice acts, hospitals, insanity, insurance, malpractice, medical practice acts, narcotics, optometry practice acts, pharmacy practice acts, privileged communications, trauma and workmen's compensation acts are a few of the 375 principal references found in the index. Physicians and others interested in solving medicolegal problems will find this book a most useful addition to their reference libraries.

Human Physiology: A Practical Course. By C. G. Douglas, C.M.G., M.C., D.M., and J. G. Priestley, M.C., D.M. Second edition. Cloth. Price, $4.25. Pp. 229, with 32 illustrations. New York & London: Oxford University Press, 1937.

This book is intended mainly for the use of medical students in courses in physiology; it gives detailed directions for various experiments that can be done on human subjects. Unfortunately, many of these experiments are of a kind which, in the United States, would be reserved for courses in physiologic chemistry. If one leaves these out of account there remains little that will be of help to American teachers of physical physiology excepting those already addicted to the use of Douglas bags and bicycle ergometers. The nervous systems and special senses are omitted, as the authors point out in their preface, but this is a field in which many medical students particularly need more experience. So, for instance, it would be interesting to apply simple tests that would reveal, even if they did not diagnose exactly, the disturbed mental state of a person in an anoxemia chamber or during voluntary hyperpnea. The book contains some instructive figures and useful references to recent physiologic literature; it should be a welcome addition to a physiologic library.

Practical Orthoptics in the Treatment of Squint. By Keith Lyle, M.A., M.D., M.Chir., Assistant Surgeon, Royal Westminster Ophthalmic Hospital, London, and Sylvia Jackson, Senior Orthoptist, Royal Westminster Ophthalmic Hospital, London. Foreword by Charles Leonard Gimblett, M.A., M.D., M.R.C.P., Surgeon, Royal Westminster Ophthalmic Hospital, London. Cloth. Price, 12s. 6d. Pp. 211, with 68 illustrations. London: H. K. Lewis & Co., Ltd., 1937.

In England there is an Orthoptic Board, which regulates the training and qualification of nonmedical orthopticians, who are pledged to work under the guidance and supervision of ophthalmologists. These orthopticians are given a year of training, at the end of which time they must satisfy the examiners of the board as to their efficiency. Kyle and Jackson have written a practical manual for them, in which they have largely avoided theoretical discussions as well as controversial subjects. The result is one of the clearest and simplest expositions of the subject. The necessary instruments are illustrated and clearly described in this book, together with the indications for the proper time and method of usage. The management of various types of squint is discussed at some length, but simply and clearly. Cases are frequently cited to illustrate the points. The book can be read advantageously by all ophthalmologists as well as by orthopticians.

Eugenical Sterilization: A Reorientation of the Problem. By The Committee of the American Neurological Association for the Investigation of Eugenical Sterilization: Abraham Myerson, M.D., and others. Cloth. Price, $3. Pp. 211, with 8 illustrations. New York: Macmillan Company, 1936.

A special committee appointed by the American Neurological Association developed this report, aided by a grant from the Carnegie Foundation. The report evaluates critically the whole question of inheritance of mental diseases, feeblemindedness, epilepsy and crime, and derives from its study certain recommendations of importance. The committee does not consider that our knowledge of human eugenics is sufficient to warrant sterilization of people who themselves are normal in order to prevent the appearance of such conditions in their descendants. It does not consider that there is at present any sound scientific basis for sterilization because of immorality or character defects. It suggests that any laws concerning sterilization passed in the United States should be voluntary and regulatory rather than compulsory; moreover, that these laws should be applicable not only to patients in such institutions but also to those in private institutions and those at large in the community. Selective sterilization, it is felt, should be considered in cases of the following diseases: (1) Huntington's chorea, hereditary optic atrophy, familial cases of Friedreich's ataxia, and certain other disabling degenerative diseases recognized to be hereditary; (2) feeblemindedness of familial type; (3) dementia praecox (schizophrenia); (4) manic-depressive psychosis, and (5) epilepsy. It is obvious that much additional research is necessary. The book concludes with an excellent bibliography and an index.

Autopsy Diagnosis and Technique: A Manual for Medical Students, Practitioners, Pathologists and Coroners' Physicians. By Otto Saphir, M.D., Chairman, Nelson Morris Institute for Medical Research, Chicago. Foreword by Ludvig Hektoen, M.D. Cloth. Price, $5. Pp. 342, with 65 illustrations. New York & London: Paul B. Hoeber, Inc., 1937.

Modern medicine has grown largely on the basis of knowledge acquired in postmortem work. The student in the medical school sees postmortem examinations made by competent pathologists, but only a few learn the actual technic of the necropsy. When the physician goes into practice, however, he may actually be called on to make a postmortem examination. In any event, it may be necessary for him to comment expertly on the results of such examinations. At various times, articles have appeared in periodical medical literature describing the technic of the postmortem examination, notably one by E. R. Lecount in THE JOURNAL some years ago. In this manual the technic is modified from that of Rokitansky. The outline is presented as a guide to the method of making the examination and of interpreting the gross appearances observed at that time. The book is well written, is profusely illustrated, and is supplemented by excellent charts and tables and a fine index.

Federal and State Control of Milk Prices. By James A. Tobey, Dr.P.H., Member of the New York District of Columbia, and United States Supreme Court Bars. Cloth. Price, $2. Pp. 42. Chicago: International Association of Milk Dealers, 1937.

This little book appears as a companion to the author's "The Legal Aspects of Milk Control," published in 1936. The earlier work was a digest of laws regulating milk and its products, and the present volume is a review of the constitutional status of laws fixing prices and regulating the production and distribution of milk. Most of this type of legislation has arisen since 1933, especially under the Agricultural Adjustment Act. The author devotes an entire chapter to an outline of the New York law. The consensus of milk dealers in New York is that the price control of milk in that state has not abolished price cutting, has not benefited either the consumer or the dealer, and is not uniformly enforceable. Perhaps as a consequence of this attitude the emergency milk control law in New York was not reenacted in 1937. The milk control laws in other states are discussed briefly in comparison with the New York laws. There is appended a table of cases that were tried before federal and state courts.

Prognosis. Volume II. Cloth. Price, 10s. 6d. Pp. 410. London: The Lancet Limited, 1937.

This is a continuation in book form of the series of articles on prognosis which have appeared in the *Lancet*. In this volume, among other subjects, certain acute and chronic infectious diseases of the bones and joints, some digestive disorders, and diseases of the ear, nose and throat and of the respiratory tract are discussed from the standpoint of their immediate and late prognosis. It is obvious that the outlook in most diseases depends on a large number of factors, including the age and state of the patient, the stage of the disease and the treatment. These factors are considered in most of the brief descriptions of the various disorders. They may be helpful to some clinicians, but the vast majority of experienced practitioners find a much more reliable index in the relatively impalpable factors absorbed from their own past experience.

The Larynx and Its Diseases. By Chevalier Jackson, M.D., Sc.D., LL.D., Professor of Bronchoscopy and Esophagoscopy, Temple University, Philadelphia, and Chevalier L. Jackson, A.B., M.D., M.Sc., Professor of Clinical Bronchoscopy and Esophagoscopy, Temple University, Philadelphia. Cloth. Price, $8. Pp. 555, with 221 illustrations. Philadelphia & London: W. B. Saunders Company, 1937.

A book of this type on the clinical aspects of diseases of the larynx has long been needed. In spite of the authors' implied apology for the literary structure, it is simply written and easily read; the only obvious criticism of this aspect is the unnecessarily frequent use of "very." Following the discussion of the anatomy and physiology of the larynx and general considerations of laryngeal disease and anomalies there are excellent discussions of injuries, inflammations and tumors, helpfully divided into chapters, to which access is easily had through the table of contents or the adequate index. The illustrations, largely from the authors' own experience, are excellent and add immeasurably to the volume. This book would seem to be invaluable to any one who might wish to approach the larynx from either a diagnostic or a manipulative angle.

British Masters of Medicine. Edited by Sir D'Arcy Power, K.B.E., F.R.C.S., F.S.A., Consulting Surgeon and Archivist to St. Bartholomew's Hospital, London. Cloth. Price, $3. Pp. 242, with 34 illustrations. Baltimore: William Wood & Company, 1936.

This is a collection of essays that appeared originally in the *Medical Press and Circular*. The book comes with multiple authorship, each of the great British masters being discussed by a current writer attached to the institutions made famous by those whose biographies are presented. Thus the reader will find available fine brief biographies of the great figures whose names have become eponyms, including Harvey, Sydenham, Pott, Jenner and Bright. The qualification of Dr. Power as an editor insures the reader of an accurate and interesting volume. The life of Osler is presented in brief by Miss Reid.

Leitfaden der Blutmorphologie. Manual of Blood Morphology. Précis de morphologie sanguine. Von-By-Par Lydia Schudel. Boards. Price, 6.80 marks. Pp. 45, with 13 illustrations. Leipzig: Georg Thieme, 1936.

This brief manual presents in English, German and French brief descriptions of the various formed elements of the blood, associated with excellent colored plates. The manual should be most useful to laboratory workers everywhere.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Life Insurance: Streptococcic Septicemia in Relation to Trauma and Preexisting Splenic Anemia.—The plaintiffs were beneficiaries under a policy of life insurance issued by the defendant insurance company, whereby it promised to pay double indemnity if the insured's death resulted from bodily injuries, effected directly and independently of all other causes through external, violent and accidental means, and not, directly or indirectly, from diseases in any form. On March 2, 1934, the insured, who had "splenic anemia and pseuda leukemia," accidentally injured his left hand, sustaining an abrasion about the size of a dime. His family physician applied mercurochrome and bandaged the hand, and repeated the procedure the next day. On March 4 he was taken to a hospital. There it was observed that he was anemic, that the abrasion had become inflamed and swollen, and that there was a large red streak extending from his hand upward on his arm. He complained of considerable pain in his left arm and hand. His temperature, which was 101 degrees Fahrenheit on admission, rose to 105 degrees before he died, March 10. The insurance company paid the face value of the policy but refused to pay double indemnity. The plaintiffs, the beneficiaries, thereupon brought suit. From a judgment in favor of the plaintiffs, the insurance company appealed to the Supreme Court of Louisiana.

The record showed that "splenic anemia and pseuda leukemia" is a serious blood disease, which lowers the resistance of the individual to infection. The physician who made the first examination of the insured's blood, Dec. 16, 1933, testified that at that time he believed that the chronic blood disease would eventually be fatal but he could not say whether the expectancy of life would be several months or several years. Three expert medical witnesses testified that streptococcic septicemia or "blood poisoning," resulting from a streptococcic infection of the hand, caused the insured's death. The insured's family physician testified that the streptococcic septicemia had hastened the insured's death. An expert medical witness for the insurance company, however, testified that he was unable to affirm or deny that the insured died of streptococcic septicemia, because a microscopic examination of a culture of the insured's blood, in order to isolate the streptococcic germ, had not been made. The mortality rate in streptococcic septicemia, it was agreed, even in normal and healthy persons, is high.

The Supreme Court, in deciding that the plaintiffs had proved by a preponderance of the evidence that the insured's death

had resulted from external, violent and accidental causes, independent of all other causes including diseases in any form, relied on, among other cases, *Illinois Commercial Men's Ass'n v. Parks* (C. C. A.) 179 F. 794, wherein the court said:

> . . . The phrase "resulting directly, independently and exclusively in death," refers to the efficient, or, as some courts speak of it, the predominant cause of death at the time it occurs.

The provision in the policy that death must not result "directly or indirectly, from diseases in any form" had no particular significance, as its only purpose was to emphasize the preceding language of the policy, that death must result from "bodily injuries, effected directly and independently of all other causes through external, violent and accidental means." The court admitted that numerous court decisions hold that where death results from an accidental injury and a preexisting disease or infirmity acting together, recovery is not allowed; but in those cases the accidents complained of would not ordinarily have produced death without the intervention of disease. In the instant case, said the court, there was an accidental injury; the history and clinical record showed that streptococcic septicemia resulted from that injury; and the insured's death was typical of streptococcic septicemia. Under those circumstances, the insured's death would naturally be expected to occur even though he had no preexisting bodily infirmity or blood disorder. The court concluded that the septicemia and not the chronic blood disease had caused the insured's death.

Accordingly, the Supreme Court affirmed the judgment in favor of the plaintiffs. *De Blieux v. Travelers Ins. Co. (La.), 170 So. 14.*

Accident Insurance: Restrictions on Insurer's Right to Autopsy.—The defendant insurance company agreed to pay certain benefits to Hemrich or his beneficiary for "loss resulting, directly and independently of all other causes, from bodily injuries sustained and effected solely through accidental means." Hemrich fell, fracturing the lower end of the fibula of his left leg, Jan. 17, 1935. Subsequently the leg became swollen and congested and "a clump formed under the knee space." Varicosities appeared in the leg and a clot formed in the left groin. Hemrich died on February 25 from what his attending physician stated was thrombosis of the pulmonary artery, attributable to the fall, which injured the inside lining of the veins, where a clot of blood formed.

The policy gave the insurer a right to an autopsy. Accordingly, the agent of the insurance company, two days after Hemrich's death, informed the widow's attorney that an autopsy was desired and referred the attorney to a Dr. Nixon of the Swedish Hospital for a consent form suitable for the widow to sign. Dr. Nixon furnished a consent form that would give, if executed, consent for the Swedish Hospital to make "such an autopsy and examination of the decedent's body as the hospital desired for a complete study of pathological changes in the internal organs, to complete the record of the case, from a general scientific standpoint that in the future patients might benefit from the knowledge gained." The Swedish Hospital, however, was in no way entitled to nor did it intend to procure any kind of an autopsy; the autopsy was desired solely for the insurance company. On being advised by her attorney that the proffered consent form seemed to contemplate an autopsy covering the whole body, unlimited as to time and intended for general clinical purposes, the widow refused to sign it. Later in the day, about 4:30 p. m., the insurance company's agent served on the widow, in the absence of her attorney, a written request, asking her: "To consent to performance of an autopsy on the body of the insured, now deceased." The funeral had already been set for the next day. The widow again refused to consent. The insurance company thereafter declined to pay any benefits under the policy. The widow brought suit and recovered judgment in the trial court, and the insurance company appealed to the Supreme Court of Washington.

The insurance company questioned the sufficiency of the evidenced adduced at the trial to indicate that death occurred under such circumstances as to charge it with liability under the policy. The Supreme Court thought, however, that the testimony of the attending physician as to the cause of death was sufficient to take the case to the jury and to enable it to pass on the matter. The court thought also that an instruction was proper which told the jury that if it found that the accident set in motion some latent physical defect or started systemic disorders, and if Hemrich died as a result, it should find that within the meaning of the policy his death was caused by reason of the accident. If the accident produced a change in or upon the body of the insured that caused his death, manifestly the accident was responsible for the death.

The insurance company contended also that the refusal of the widow to consent to an autopsy relieved the company of liability. The weight of the authorities, replied the Supreme Court, is that under a policy such as the one in this case the insurer is entitled to have an autopsy made, provided it is seasonably made and reasonable as to time and scope. The evidence, the court concluded, was sufficient to warrant the submission to the jury of the question as to the reasonableness of the demand made by the insurer and as to the time and scope of the proposed autopsy. The Supreme Court approved an instruction which told the jury that if the demand for an autopsy was not seasonably and reasonably made, it should find for the widow, since she was justified in refusing the demand; that in order for the demand to be reasonable and seasonable, the autopsy must have been reasonably necessary to determine the cause of death and must have been made within and under the terms of the policy and for the sole purpose of determining the cause of death; and that it was the duty of the insurance company to make a demand in accordance with the terms of the policy and in a manner and method in keeping with the proprieties of the occasion. The insurance company objected to this instruction contending that the form of the demand was not an issue in the case. This contention, replied the Supreme Court, is not tenable. Two written demands were made. One of them, on its face, was made by and on behalf of the Swedish Hospital, which was not interested in the matter; both demands contained language bearing on the question of the timeliness and scope of the requested autopsy, which, under the facts of the case, called for a finding by the jury as to the reasonableness of the demands. The burden, concluded the Supreme Court, is not on the beneficiary to initiate proceedings for an autopsy, nor to provide the language of the form to be used in making a demand for one; that is the duty of the insurance company if it desires an autopsy.

The Supreme Court accordingly affirmed the judgment of the lower court in favor of the widow.—*Hemrich v. Aetna Life Ins. Co. (Wash.), 63 P. (2d) 432.*

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 20-22. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Association of Railway Surgeons, Chicago, Sept. 20-22. Dr. Daniel B. Moss, 547 W. Jackson Blvd., Chicago, Secretary.

American Congress of Physical Therapy, Cincinnati, Sept. 20-24. Dr. Richard Kovacs, 1100 Park Ave., New York, Secretary.

American Hospital Association, Atlantic City, N. J., Sept. 13-18. Dr. Bert W. Caldwell, 18 East Division St., Chicago, Executive Secretary.

American Roentgen Ray Society, Chicago, Sept. 13-17. Dr. Eugene P. Pendergrass, 3400 Spruce St., Philadelphia, Secretary.

Clinical Orthopaedic Society, Chicago, Sept. 30-Oct. 2. Dr. H. Earle Conwell, 215 Medical Arts Bldg., Birmingham, Ala., Secretary.

Colorado State Medical Society, Colorado Springs, Sept. 22-25. Mr. Harvey T. Sethman, 537 Republic Building, Denver, Executive Secretary.

Idaho State Medical Association, Boise, Aug. 30-Sept. 3. Dr. Harold W. Stone, 105 North Eighth St., Boise, Secretary.

Kentucky State Medical Association, Richmond, Sept. 13-16. Dr. A. T. McCormack, 532 West Main St., Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 27-30. Dr. L. Fernald Foster, 311 Center Ave., Bay City, Secretary.

Mississippi Valley Medical Society, Quincy, Ill., Sept. 29-Oct. 1. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

National Medical Association, St. Louis, Aug. 15-20. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.

Nevada State Medical Association, Ely, Sept. 24-25. Dr. Horace J. Brown, 120 N. Virginia St., Reno, Secretary.

Northern Minnesota Medical Association, Virginia, Aug. 27-28. Dr. J. F. Norman, Crookston, Secretary.

Radiological Society of North America, Chicago, Sept. 13-17. Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, N. Y., Secretary.

Utah State Medical Association, Salt Lake City, Sept. 2-4. Dr. F. M. McHugh, 17 Exchange Place, Salt Lake City, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 14-17. Mr. J. G. Crownhart, 119 East Washington Ave., Madison, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

6: 373-408 (June) 1937

Modern Conception of Congestive Heart Failure. W. G. Harrison Jr., Birmingham.—p. 373.
Angina Pectoris. C. R. Bennett, Eufaula.—p. 377.
The Functional Patient. J. B. McLester, Birmingham.—p. 381.

American J. Digest. Dis. & Nutrition, Fort Wayne, Ind.

4: 215-280 (June) 1937

Hepatic Lesions Presumably Secondary to Pancreatic Lithiasis and Atrophy: Report of Two Cases. A. M. Snell and M. W. Comfort, Rochester, Minn.—p. 215.
*Hydrogen Peroxide as a Depressant of Gastric Acidity. C. U. Culmer, A. J. Atkinson and A. C. Ivy, Chicago.—p. 219.
Contribution to Etiology of Gallstones: III. Study of Hydrogen Ion Concentration of Gallbladder Bile and Its Effect on Gallstones. M. Feldman, S. Morrison, C. J. Carr and J. C. Krantz Jr., Baltimore.—p. 223.
Peristaltic Rush Studied with New Apparatus. W. C. Alvarez, Rochester, Minn.—p. 225.
Office Procedure for Rapid Estimation of Pepsin and Its Clinical Significance. H. Barowsky, H. Tauber and I. S. Kleiner, New York.—p. 229.
Abnormalities of Rotation of Midgut: Report of Four Cases. G. Danelius, Chicago.—p. 231.
Further Refinements in Method of Administering Colon Bacillus Vaccine Therapy, and in Therapeutic Use of Sodium Ricinoleate (as Related to Chronic Functional Diarrhea, Chronic Headache, Chronic "Toxic Vertigo" and "Unstable Colon"). J. G. Mateer and J. I. Baltz, Detroit.—p. 237.
Infant Feeding—Individualized versus Routine. I. N. Kugelmass, New York.—p. 240.
Trichomonas Hominis Infestation: Case. H. W. Soper, St. Louis.—p. 245.
Colitis Ulcerosas Graves No Amibianas, Etiologia, Diagnostica y Tratamiento Medico. F. Gallart Mones and P. Domingo Sanjuan; abstracted by J. A. Bargen and A. E. Mendes Ferreira, Rochester, Minn.—p. 247.
Causes and Treatment of Peptic Ulcer. P. Campiche, San Francisco.—p. 250.
Intestinal Motility in Rats Anesthetized with Ether. G. A. Emerson, Morgantown, W. Va.—p. 255.

Hydrogen Peroxide as Depressant of Gastric Acidity.—Culmer and his associates studied the effect of hydrogen peroxide on gastric secretion under controlled laboratory conditions and also in a few human subjects. Lavage of the stomach with hydrogen peroxide solution (from 0.5 to 3 per cent) produced a decrease in the acid of the gastric contents when either a meal or subcutaneous injection of histamine was used to stimulate acid secretion. This decrease was observed in the percentage of acid in the gastric contents and in the total milligrams of acid. The stronger the solution of hydrogen peroxide used the greater was the decrease of acid response. This decrease varied widely in different subjects and also from time to time in the same subject. However, one of the dogs and two of the five human subjects consistently showed increases in acid secretion rather than decreases. The mucous secretion was always augmented. At times there was a complete absence of free acid (but no instances of complete absence of total acid) in response to histamine stimulus. However, it was the exception rather than the rule. While no chemical analyses for content of mucus were made, it was obvious that generally an increase in mucoid or mucous secretion paralleled a decrease in acidity. This observation certainly was true in those tests in which no free acid was found. To obtain a significant reduction in acid secretion in peptic ulcer in response to histamine or a meal concentrations of from 1 to 2 per cent of peroxide must be employed. Even then stimulation, as observed by Hurst with very weak solutions, may occasionally occur. A 3 per cent solution is too irritating. When the weaker solutions are used, the return of the secretory response to normal is relatively rapid. In the case of a "susceptible" stomach, however, a 0.5 per cent solution applied every other day will reduce acid secretion significantly. However, it might cause active ulcers to bleed; for a patient with gastric ulcer showed bleeding with 1 and 2 per cent solutions, and one of the dogs with a "normal" stomach showed marked bleeding after 3 per cent. Although it would be desirable to have some simple and innocuous method for reducing the secretion of acid by the stomach, the authors do not feel that the use of hydrogen peroxide can be recommended without considerable reservation.

American Journal of Diseases of Children, Chicago

53: 1425-1660 (June) 1937

Epidemic Myalgia, or Pleurodynia: Clinical and Bacteriologic Studies. R. R. Macdonald, Barbara Hewell and M. L. Cooper, Cincinnati.—p. 1425.
Salicylate Poisoning: Explanation of More Serious Manifestations. Katharine Dodd, Ann S. Minot, Nashville, Tenn., and J. M. Arena, Durham, N. C.—p. 1435.
Streptococcic Meningitis and Abscess of the Brain Complicating Scarlet Fever: Report of Three Cases in Which Patients Recovered. M. B. Gordon, A. M. Litvak and V. Caronna, Brooklyn.—p. 1447.
Children's Electrocardiograms: I. Measurements for 100 Normal Children. Eleanor M. Hafkesbring, Catherine E. Drawe and R. Ashman, New Orleans.—p. 1457.
*Id.: II. Changes in Children's Electrocardiograms Produced by Rheumatic and Congenital Heart Disease. Catherine E. Drawe, Eleanor M. Hafkesbring and R. Ashman, New Orleans.—p. 1470.
Study of Lead IV in Normal Children and in Ambulatory Children with Cardiac Disease. C. R. Messeloff and Anne Pomerantz, New York.—p. 1485.
Inactivation of Poliomyelitis Virus by Ultraviolet Irradiation. J. A. Toomey, Cleveland.—p. 1490.
Poliomyelitis Antiserum Obtained from Horses. J. A. Toomey, Cleveland.—p. 1492.
*Factors Influencing Results of Tonsillectomy and Adenoidectomy: Study of 540 Children, Correlating Preoperative Complaints, the Age of the Child, Type of Tonsils and Microscopic Study of Tonsils with Postoperative Results. I. M. Epstein, El Paso, Texas.—p. 1503.
Familial Metaphysial Dysplasia. H. Bakwin and A. Krida, New York.—p. 1521.
Pulmonary Pathologic Conditions in Infancy and Childhood: Clinical Survey from Bronchoscopic Point of View. V. K. Hart, Charlotte, N. C.—p. 1544.

Changes in Children's Electrocardiograms.—Drawe and her colleagues made electrocardiograms of 100 children with rheumatic heart disease and of fifty children with congenital heart defects and compared the averages for the different intervals with the electrocardiograms of 100 normal children. The principal abnormalities of the P wave in the electrocardiograms of children with rheumatic heart disease are definite and conspicuous notching, widening and slight increase in height. The PR interval is definitely prolonged in a large percentage of cases of rheumatic heart disease. The abnormalities of the QRS complex are relatively slight. Only a slight tendency to right axis deviation was shown in the electrocardiograms of children with mitral stenosis and insufficiency. The children with aortic regurgitation showed a definite tendency to left axis deviation. The incidence of shifts of the RST segment is increased. Abnormalities of the T waves consisted of low T waves in all leads, diphasic T waves in lead 1, and low, rounded, notched and inverted T waves in lead 2. The QT interval is often definitely prolonged in cases of rheumatic heart disease. Not all children with rheumatic heart disease have abnormal electrocardiograms. The main abnormalities of the P wave were in the group with the congenital defect, an increase in the width and height, and these were found chiefly in the electrocardiograms of children with pulmonary stenosis and tetralogy of Fallot and to a lesser degree in children with interventricular septal defects. The PR interval was slightly prolonged on the average. The average duration of the QRS in the electrocardiograms of children with congenital heart defect was longer than that in the electrocardiograms of normal children. This increase in duration was due mainly to the influence of the children with pulmonary stenosis. Notching and slurring of the QRS occurred frequently in the electrocardiograms of children with pulmonary stenosis, occasionally in those of children with interventricular septal defect and rarely in those of children with patent ductus arteriosus. All the electrocardiograms of children with pulmonary stenosis showed extreme, conspicuous or definite right axis deviation, ranging from 99 to 179 degrees. The T waves averaged considerably higher than those in the electrocardiograms of the

normal group. Abnormalities of the T waves are occasionally found, consisting of inversions of T_2 and deep inversions of T_3. The QT interval was slightly prolonged in a few instances.

Results of Tonsillectomy and Adenoidectomy.—To determine, if possible, what points in the history of the case and in the appearance of the throat are significant with reference to the clinical result obtained and to arrive at a more certain method of prognosis and more specific criteria for both prognosis and indications for tonsillectomy and adenoidectomy, Epstein observed 540 children between the ages of 2 and 13 years before and at intervals for two years after these surgical interventions. Histologic sections of the tonsils of 152 of these children were studied. Practically all these tonsils showed a greater or lesser degree of infection or connective tissue scars or both. Large tonsils were almost always infected. Tonsils that were cryptic usually contained more caseous material. Tonsils with much caseous material almost invariably had cryptic abscesses. Whether the tonsils were buried, cryptic, smooth, large or small bore no relation to the preoperative symptoms or to the degree of success of the operation. Excellent results were obtained with children of all ages in the relief of sore throat and of cervical adenitis, good results in the relief of mouth breathing, fairly good results in the relief of cough, and fair results in the relief of frequent head colds. Except in cases of tonsillitis or pharyngitis, the results for all complaints were only fair in children less than 6 years old. With the complaints of a cough and head colds the results were especially poor, particularly in children less than 4 years old. More consistently good results may be expected if the operation of tonsillectomy and adenoidectomy is postponed until the child is 6 years of age or older, especially if head colds or a cough is the complaint; except in the estimation of mechanical obstruction, the appearance of the tonsils in children is unimportant to the physician in arriving at a decision as to the advisability of the operation.

American Journal of Hygiene, Baltimore

25: 421-618 (May) 1937

Influence of Variations in Exposure in Amebiasis: Quantitative Study. A. V. Hardy, New York—p. 421.
Rickettsia Diseases: Varieties, Epidemiology and Geographic Distribution. H. Zinsser, Boston.—p. 430.
Tetanus Immunity: Resistance of Guinea-Pigs to Lethal Spore Doses Induced by Active and Passive Immunization. P. A. T. Sneath, E. G. Kerslake and F. Scruby, Toronto.—p. 464.
*Studies on Relationship Between Yaws and Syphilis. T. B. Turner, New York.—p. 477.
Specific Fertility and Contraceptive Rates in New York City and Chicago. R. Pearl, Baltimore.—p. 507.
Vomiting Sickness of Jamaica, British West Indies and Its Relation to Akee Poisoning. E. O. Jordan and W. Burrows, Chicago.—p. 520.
Dilution Egg Counting in Comparison with Other Methods for Determining Incidence of Schistosoma Mansoni. J. A. Scott.—p. 546.
Incidence and Distribution of Human Schistosomes in Egypt. J. A. Scott.—p. 566.

Relation Between Yaws and Syphilis.—Turner studied the relation of yaws and syphilis to each other, observing the clinical manifestations and the epidemiology of syphilis among a representative sample of an urban population in Baltimore and that of yaws among a representative sample of a rural population in Jamaica. The relation of both syphilis and yaws was observed among an urban population in Kingston. The disease phenomena produced in laboratory animals by organisms obtained from yaws and syphilis patients living in each of these communities were also studied. Easily recognizable differences were elicited between the two diseases. These differences cannot be explained on the basis of differences in factors such as race, the age of the person at the time of infection, the port of entry of the organism or the social and economic status of the affected individuals. Certain climatic factors seemed to play a part in determining the distribution of yaws, but there was no clear evidence that these factors materially modified the course of either yaws or syphilis in the patient. Typical cases of each disease were found among persons living in the same environment in Kingston, Jamaica. The inoculation of rabbits with spirochetes from cases of each disease produced, in these animals, lesions which differed according to the disease from which the patient was suffering. Each of thirteen strains of yaws spirochetes studied gave rise to the same type of lesion in rabbits. Each of eight strains of syphilis spirochetes recovered from persons living in Jamaica produced lesions which, while similar to each other, were readily distinguishable from those produced by yaws spirochetes. The ability to produce characteristic lesions in the rabbit was not lost on serial passage in this animal over a period of three years. It is concluded that Spirochaeta pallida possesses pathogenic properties which differ from those of Treponema pertenue and that the differences noted between yaws and syphilis in man are due, in part at least, to inherent differences in the causative agent of each disease.

American J. Obstetrics and Gynecology, St. Louis

33: 909-1112 (June) 1937. Partial Index

Lymphatics of Mucosa of Fimbriae of Fallopian Tube. J. A. Sampson, Albany, N. Y.—p. 911.
Demonstration of Gonadotropic Substances in Blood and Urine. C. F. Fluhmann, San Francisco.—p. 931.
Identification and Significance of Spirochetes in Placenta: Report of 105 Cases with Positive Findings. H. G. Dorman and P. F. Sahyun, Beirut, Syria.—p. 954.
Chronic Uterine Distention and Its Relation to End of Gestation. S. R. M. Reynolds, Brooklyn.—p. 968.
Effect of Long-Continued Large Doses of Follicle Hormone on Uterus of Rat. B. Zondek, Jerusalem, Palestine.—p. 979.
*Standardization of Anterior Pituitary Hormones. J. B. Collip, Montreal.—p. 1010.
Sarcoma of Vulva. F. J. Taussig, St. Louis.—p. 1017.
Technic of Timing Human Ovulation by Palpable Changes in Ovary, Tube and Uterus. R. L. Dickinson, New York.—p. 1027.
Resection of Presacral Nerve in Treatment of Obstinate Dysmenorrhea. G. Cotte, Lyons, France.—p. 1034.
Pathology and Treatment of Inflammatory Diseases of Cervix: "The Pelvic Tonsil." J. R. Goodall and R. M. H. Power, Montreal.—p. 1050.
Biologic Assay of Estrogenic Factors in Pregnancy Urine. M. A. Goldberger, New York.—p. 1093.

Standardization of Anterior Pituitary Hormones.—Collip contends that, irrespective of the number of physiologic effects that may be demonstrated for various anterior lobe preparations and irrespective of the apparent purity in a physiologic sense of this or that extract, the number of active principles in the normal gland in the living subject must of necessity be few (three or four). He does not believe that any one has as yet obtained an anterior lobe extract without some modification of the active principle or principles present in the living gland having taken place. He visualizes the naturally occurring anterior lobe hormone or hormones as rather large protein molecules to each of certain prosthetic groups of which some specific physiologic effect may be related. Such a view allows the hope that some day simpler compounds having specific physiologic effects may be obtained in crystalline form. These would not be true hormones but breakdown products resulting from controlled hydrolytic or other processes yet to be discovered. Meanwhile it becomes most essential that some system of biologic standardization of extracts should be agreed on, particularly so that experimental clinical studies can be satisfactorily made and the results of such adequately evaluated. As yet there is not enough information to allow absolutely rigid standards, but an attempt can be made, and in the course of time methods of testing which are universally acceptable may be agreed on.

American Journal of Ophthalmology, St. Louis

20: 565-674 (June) 1937

Scleromalacia: Report of Case. F. A. Kiehle, Portland, Ore.—p. 565.
Lectures on Glaucoma: II. Operative Treatment of Glaucoma. R. E. Wright, Madras, India.—p. 571.
Complete Retinal Detachment (Both Eyes), with Especial Reference to Allergy as Possible Primary Etiologic Factor. R. M. Balyeat, Oklahoma City.—p. 580.
Uveitis: Rôle of Intra-Ocular Typhoid-Antibody Content in Treatment. A. L. Brown, Cincinnati.—p. 583.
*Defective Central Vision Following Successful Operations for Detachment of Retina. A. B. Reese, New York.—p. 591.
Aniseikonia: Clinical Study. G. Hardy, St. Louis.—p. 599.
Contact Glasses. G. M. Bruce, New York.—p. 605.
Rhinogenic Origin of Sympathetic Ophthalmia. B. Waldmann, Oradea, late Nagyvárad, Roumania.—p. 618.

Vision Following Operations for Retinal Detachment.—From the statistics of Dunnington and Macnie, compiled from patients operated on for retinal detachment at the Institute of Ophthalmology, New York, Reese deduces that approximately normal vision (20/30) is obtained in only about one third of the successful cases and that the duration of the detachment is a factor in the visual result. From the microscopic exami-

nation in the routine cases of retinal detachment which come to enucleation, it is well known that cystic spaces frequently occur in the macular region and, to a lesser extent, elsewhere in the retina. This change is usually considered a very late sequel, and its occurrence has been noted almost invariably in eyes in which other pathologic changes were present, so that it is difficult to say to what extent detachment alone was responsible for the cysts. Twelve cases of simple serous detachment of the retina, ranging in duration from less than two weeks to four years, all showed cysts in the macula. It was here that they seemed to appear first and to attain their largest size. The cysts present in the retinas in the twelve cases seemed to be secondary to the detachment. No inflammatory element was present. There was a history of trauma in only three of the cases. Glaucoma was present in four of the cases. An operation for reattachment of the retina was performed in two cases, but the changes incident to this did not seem to be a factor in the formation of the cysts. The edema of the retina and the cyst formations were probably due to the altered retinal circulation, which permitted a stasis of tissue fluids. This is more prone to appear in the macula first and more severely because this area is relatively avascular. When a detached retina becomes reattached, the gradual disappearance of the edema probably accounts for the slow progressive improvement in central vision and in the peripheral fields, which may take place over a period of months. If cyst formations in the macula have led to a destruction of the neurons, a permanent defect in central vision is to be expected. The presence of cysts in the macula or elsewhere in the retina cannot be recognized clinically as such by the ordinary ophthalmoscopic examination. When present, they may appear as poorly demarcated, grayish to yellowish white foci, or as a rarefied area described usually as a "hole." In cases of detachment of the retina, the author finds that a cystic degeneration of the macula can be recognized if this area is sufficiently close to the underlying choroid to permit a reflection of a sharp narrowed beam of light from the choroidal surface. This beam of light, which is afforded by the usual ophthalmoscope, is directed to one side of the macular region to be studied, and the observer shifts his head until the incident rays reflected from the choroid are detected in the nonilluminated field. This is comparable to retro-illumination of the cornea by reflected light from the iris in slit lamp examination. In more advanced cases there may be an irregularly round rarefied area at the fovea surrounded by cystic spaces and apparently formed by their confluence. Such so-called holes can, of course, be seen by the ordinary ophthalmoscopic examination, but the cystic element around their periphery can be made out best by the method of retro-illumination. In most instances, what was diagnosed clinically as a hole in the macula certainly represented conglomerate or confluent cysts.

American Journal of Physiology, Baltimore

119: 221-428 (June) 1937

Transmission of Impulses Through a Sympathetic Ganglion. W. B. Cannon and A. Rosenblueth, Boston.—p. 221.

Curarization, Fatigue and Wedensky Inhibition. A. Rosenblueth and R. S. Morison, Boston.—p. 236.

Anatomical Record, Philadelphia

68: 263-392 (June) 1937

Differential Staining. A. Petrunkevitch, New Haven, Conn.—p. 267.

Observations on Nature of Parafollicular Cells in Thyroid Gland of Dog: Preliminary Note. Emelia M. Vicari, Ithaca-New York.—p. 281.

Structure of Nephron in Fishes: Representative Types of Nephron Encountered; the Problem of Homologies Among Differentiated Portions of Proximal Convoluted Segment. A. L. Grafflin, Boston.—p. 287.

Development of Parathyroids in Dog with Emphasis on Origin of Accessory Glands. M. C. Godwin, Ithaca, N. Y.—p. 305.

Morphologic Comparison of Parietal and Visceral Peritoneal Epithelium in Fetus and Adult. R. H. Puumala, Chicago.—p. 327.

Hypertrophy of Interstitial Cells in Testes of Mice Receiving Estrogenic Hormones. W. U. Gardner, New Haven, Conn.—p. 339.

Development of Gut and Its Derivatives from Mesectoderm and Mesentoderm of Early Chick Blastoderms. T. E. Hunt, University, Ala.—p. 349.

Recovery of Rats on Refeeding After Prolonged Suppression of Growth by Underfeeding. C. M. Jackson, Minneapolis.—p. 371.

Definition of Glisson's Capsule: Note. G. C. Whitney, Rochester, N. Y.—p. 383.

Retrocaval Ureter: Case. J. C. Wren, Chapel Hill, N. C.—p. 389.

Annals of Surgery, Philadelphia

105: 881-1050 (June) 1937

Technic of Colpoperineorrhaphy. L. E. Burch and J. C. Burch, Nashville, Tenn.—p. 881.

Echinococcus Disease: Report of Case of Primary Echinococcus Cyst of Uterus. H. E. Miller and C. G. Collins, New Orleans.—p. 886.

Shropshire Supravaginal Plastic Operation. J. T. Moore, Houston, Texas.—p. 896.

Status of Vaginal Hysterectomy in Gynecologic Surgery. C. H. Tyrone, New Orleans.—p. 901.

Satisfactory Method of Repairing Crucial Ligaments. F. P. Strickler, Louisville, Ky.—p. 912.

Effects on Bone of Presence of Metals; Based on Electrolysis: An Experimental Study. C. S. Venable, W. G. Stuck and A. Beach, San Antonio, Texas.—p. 917.

Internal Fixation in Fractures of Neck of Femur. W. C. Campbell, Memphis, Tenn.—p. 939.

Congenital Lymphatic Diseases: Lymphangiomas. A. O. Singleton, Galveston, Texas.—p. 952.

Fibro-Angioma of Spleen: Report of Case in an Infant of Four Months. L. W. Grove, Atlanta, Ga.—p. 969.

Suppurative Adenitis of Iliac Lymph Nodes of Hemolytic Streptococcus Origin. L. Frank, Louisville, Ky.—p. 975.

Study of Wound Healing. M. R. Reid, Cincinnati.—p. 982.

Is Adequate Masking Essential for Patient's Protection? J. S. Davis, Baltimore.—p. 990.

Pathogenesis of Local Tetanus. C. C. Green, Houston, Texas.—p. 998.

*Origin and Growth of Renal Calculi. A. Randall, Philadelphia.—p. 1009.

Theory of Origin of Renal Calculi.—Randall has tried to work back to what might be called a study of calculogenesis: the stone's conception, its embryonic growth, its fetal life cycle, up to the point at which size and symptoms made it a clinical entity. The first postulate made was that there must be an initiating lesion that precedes the formation of a renal calculus. A second postulate was necessary as to where such a lesion might be expected to be found. The renal papilla performs a complicated function, is open to multiple physiologic variations and is known to suffer recognized insults that lead to pathologic changes; therefore it was postulated that the initiating lesion was to be looked for on the renal papilla. The general impressions obtained by a study of specimens are that there occurs a definite damage to the epithelial lining of the collecting tubules, and that the nearer one goes toward the tip of the papilla the more noticeable the changes are; that there is a marked damage to the ground substance of the interstitial connective tissue and of the basement membrane of many of the collecting tubules. Here and there the ground substance is broken up and granular and has a necrotic appearance. These changes appear to be followed by the deposition of calcium and calcium plaque formation. In places the calcium is deposited in damaged epithelium of the collecting tubules, but the primary deposit appears to be in the basement membranes leading to the formation of ringlike structures. No evidence of infection is seen in any of the sections presented. The most significant conclusion to be drawn is that the answer to the secret which has shrouded in mystery the true etiology of primary renal calculus is to be sought in an increasing knowledge of the physiology and pathology of the renal papilla.

Archives of Internal Medicine, Chicago

59: 931-1114 (June) 1937

Monocytic Leukemia: Report of Six Cases and Review of 127 Cases. E. E. Osgood, Portland, Ore.—p. 931.

*Poisoning from Cutaneous Application of Iodine: Rare Aspect of Its Toxicologic Properties. W. B. Seymour Jr., New Haven, Conn.—p. 952.

Chronic Relapsing Latent Meningeal Plague. K. F. Meyer, C. L. Connor, F. S. Smyth and B. Eddie, San Francisco.—p. 967.

Phosphatase Activity, Inorganic Phosphorus and Calcium of Serum in Disease of Liver and Biliary Tract: Study of 123 Cases. C. A. Flood, Ethel Benedict Gutman and A. B. Gutman, New York.—p. 981.

Carbohydrate Metabolism in Epilepsy. L. J. Pollock and B. Boshes, Chicago.—p. 1000.

Retention and Utilization of Small Amounts of Orally Administered Iron. W. M. Fowler, Adelaide P. Barer and G. F. Spielhagen, Iowa City.—p. 1024.

Coccidioides Infection: Part I. E. C. Dickson, San Francisco.—p. 1029.

*Serum Phosphatase in Jaundice. A. Cantarow and J. Nelson, Philadelphia.—p. 1045.

Blood: Review of Recent Literature. S. M. Goldhamer, F. H. Bethell, R. Isaacs and C. C. Sturgis, Ann Arbor, Mich.—p. 1051.

Poisoning from Cutaneous Application of Iodine.—The case that Seymour reports is the only one in the literature in which one of the severest types of cutaneous reaction was noted: exfoliative dermatitis. Whether or not this reaction

was due to the iodine-tuberculosis (pneumothorax) relationship is an interesting question. Lass demonstrated that the intracutaneous administration of a solution of sodium iodide to normal subjects caused no reaction, whereas nine of fifteen patients with pulmonary tuberculosis so tested showed local reddening and wheal formation. His work and the case of exfoliative dermatitis presented seem to indicate that there may be factors other than that the iodides facilitate lysis of the tissue formed by inflammatory reaction which must be taken into consideration. The fact that the patient with exfoliative dermatitis did not show any reaction to iodine until six applications had been made suggests that sensitivity was being established which finally manifested itself in severe cutaneous and systemic disturbances. In five of the fourteen cases reported in the literature coryza was associated with iodism, thus making it conclusive that the reaction was due to iodine. These persons must have been extremely sensitive, as the total minimal dose of iodine in the form of potassium iodide required to produce symptoms of iodism is from 60 to 75 grains (4 to 5 Gm.), and in these persons milligram quantities were used. Toxic manifestations were cutaneous and systemic. The mortality rate was 46.9 per cent. Death was attributed to the exfoliative dermatitis in the present case.

Serum Phosphatase in Jaundice.—Since there still appears to be some difference of opinion regarding the clinical significance of an increase in the phosphatase content of the serum and its value in differentiating between hepatocellular and obstructive types of jaundice, and since this important question can be settled only by the accumulation of observations on large numbers of patients, Cantarow and Nelson carried out serum phosphatase determinations for thirty-one patients with obstructive and twenty-two with hepatocellular jaundice. There was a wide overlapping of phosphatase values in the two groups, which became even more pronounced when the present data were combined with those reported by other observers employing the same methods. It appears that this procedure is of no value in differentiating between these two types of jaundice.

Canadian Public Health Journal, Toronto

28: 259-310 (June) 1937

New Case Finding in Tuberculosis: Methods Used in Rural Province of Saskatchewan. H. C. Boughton, Saskatoon, Sask.—p. 259.
The Mouse Protection Test in Standardization of Antimeningococcus Serum. G. Rake, Toronto.—p. 265.
Nurses and Nursing. Elizabeth L. Smellie, Ottawa, Ont.—p. 270.
Scarlet Fever Toxin in Epidemic Control. A. Somerville, High River, Alta.—p. 275.
*Epidemic of Bacillary Dysentery. R. J. Gibbons, Vancouver, B. C.—p. 278.
Classification of Causes of Fetal Death. A. H. Sellers, Toronto.—p. 282.

Epidemic of Bacillary Dysentery.—Gibbons discusses an outbreak of bacillary dysentery in a lumber camp in which there were 160 men, twenty-three women, twelve school children and four children of preschool age. From Oct. 30, 1936, when the first case was recorded, until Nov. 15, 1936, twenty-two cases had been reported to the first aid attendant. Enquiry revealed that the reported cases represented but a proportion of the total, for a number of men who had experienced a mild attack had not reported to the first aid station, nor had any of the cases occcurring in the women and children been reported, since these did not come under the care of the first aid attendant. Since less than half of the men were available for questioning on the day on which the camp was visited, no accurate attack rate can be recorded, but it is estimated that inclusion of all the unreported cases would show that about 35 per cent of the community had been infected. The clinical manifestations of the disease in this outbreak were acute diarrhea with abdominal cramps and tenesmus, fever, headache, anorexia and emesis in some cases. The severity of the symptoms varied widely in individual cases from mild diarrhea only to the acute symptoms. Bacillus dysenteriae Flexner and Bacillus dysenteriae Sonne were isolated from stool specimens of cases. The infection was food borne and was attributed to the contamination of food supplies by flies. The flies carried the infectious agent from an area, adjacent to the kitchen and food storage rooms, which had been polluted by sewage through a break in the sewerage system. This is the first outbreak involving Bacillus dysenteriae Sonne reported from British Columbia.

Iowa State Medical Society Journal, Des Moines

27: 239-278 (June) 1937

The Development of Asepsis. Alice Humphrey Hatch, Des Moines.—p. 245.
Roentgen Diagnosis of Primary Intrathoracic Tumors. D. M. Earl, Iowa City.—p. 247.
Avulsion of Tibial Tubercle in the Adult: Report of Case. L. M. Overton, Des Moines.—p. 250.
Prophylaxis and Early Diagnosis of Heart Disease: I. Rheumatic Fever. A. G. Felter, Van Meter.—p. 252.

Journal of Lab. and Clinical Medicine, St. Louis

22: 877-984 (June) 1937. Partial Index

Precipitins for Streptococcus Haemolyticus in Rheumatoid Arthritis Serums. Margaret Straub Neil and E. F. Hartung, New York.—p. 881.
Nature of Antipernicious Anemia Principle II: Identification of 5, 6-Quinone of Dihydroindole-2-Carboxylic Acid in Liver Extract. H. R. Jacobs, Chicago.—p. 890.
Id.: III: Response of Case of Pernicious Anemia to Oral Administration of Tyrosinase-Tyrosine Mixture. H. R. Jacobs, Chicago.—p. 892.
*Is Lasting Active Immunity Against Diphtheria Obtainable with Single Injection of Alum-Precipitated Toxoid? H. W. Straus, Brooklyn.—p. 893.
*Control of Rectal Bleeding in Convalescent Ulcerative Colitis Patient. W. Z. Fradkin, Brooklyn.—p. 896.
Blood Lipid Studies in Case of Xanthomatosis Associated with Hepatic Damage. A. Chanutin and S. Ludewig, Charlottesville, Va.—p. 903.
Further Studies on Oral Immunization to Colds. G. E. Rockwell, H. C. Van Kirk, Cincinnati, and H. M. Powell, Indianapolis.—p. 912.
Production of Chronic Arthritis by Indole and Other Products of Tryptophan Putrefaction. J. C. Forbes and R. C. Neale, Richmond, Va.—p. 921.
Effect of Antipernicious Anemia Substances on Guinea-Pig Reticulocytosis and Review of Literature. W. H. Bachrach and S. J. Fogelson, Chicago.—p. 925.
Chemical Demonstration of Small Amounts of Blood in Urine. K. Larsen, Copenhagen, Denmark.—p. 935.
Estimation of Cholesterol in Blood: Supplementary Notes on Method Utilizing Bernoulli Reaction. E. Obermer and R. Milton, London, England.—p. 943.
Rapid Methods for Preparing and Staining Bone Marrow. E. M. Schleicher and E. A. Sharp, Detroit.—p. 949.
Oxidative Micro-Estimation of Plasma Total Lipid. E. M. Boyd, Kingston, Ont.—p. 956.
*Microflocculation Test for Syphilis. J. A. V. Davies, Boston.—p. 959.
Micromethod for Determination of Blood Cholesterol. M. Pijoan and C. W. Walter, Boston.—p. 968.

Immunity Against Diphtheria.—The results of Schick tests and control tests that Straus carried out on forty-seven children after the single injection of concentrated alum-precipitated toxoid in a dose of 0.5 cc. show that three months after the injection two of the thirty-six persons tested gave positive reactions. At the retests, twelve months later, two of the previously negative subjects showed mild reactions, while two who had previously shown positive reactions were now negative. An additional eleven susceptible children immunized in another institution were all found to be Schick negative at the retest. Five of these were retested after eleven months and six after twenty-seven months. The superiority of these results over those reported previously suggests the importance of the method of preparation of the immunizing material. This question must be thoroughly investigated before a physician is advised to forego the great advantages of the single injection method.

Control of Rectal Bleeding in Ulcerative Colitis.—For the control of rectal bleeding in ulcerative colitis patients Fradkin administered by rectum a mixture consisting of 20 per cent kaolin, 10 per cent liquid petrolatum and 70 per cent of a gel of aluminum hydroxide. Treatment with this mixture stopped the bleeding and decreased the number of bowel movements. Since the lesions are found in the distal half of the colon, it was decided that 10 ounces (300 cc.) of the mixture would be ample for one treatment. When a patient passed three or more stools in twenty-four hours, the medication was administered without a preliminary saline irrigation. Otherwise, a small, low saline enema was given about two hours before the treatment. Six ounces (180 cc.) of the mixture was diluted with 4 ounces (120 cc.) of warm water. The treatments were carried out three times weekly, and then gradually reduced to once a week, as improvement was noted. The mixture was instilled slowly, taking fifteen to twenty minutes for the procedure. The blood streaks disappeared after the third or fourth week. In a few cases only four or six treatments were necessary. When blood streaking recurred, one or two weeks

of treatments readily controlled it. Twenty-six patients convalescing from acute attacks of ulcerative colitis were treated. The average number of treatments which were necessary to control the passage of blood-streaked stools was 11.4. The average number of weeks required for treatments was 7.7. Sigmoidoscopic examinations were repeated as soon as the patients reported no visible blood in the stools. These observations in the majority of cases revealed clean, reddened, granular mucous membranes with only occasional superficial ulcerations which oozed slightly on manipulation. After further treatments, these lesions healed promptly leaving a pale, pink, granular mucosa.

Microflocculation Test for Syphilis.—In view of the practical advantages possessed by the Hinton test, Davies modified it in such a way that 0.2 cc. of serum could be used for a microtest and, in addition, only 0.05 cc. for a capillary test. Both tests employ the regular Hinton antigen emulsion, and the reaction which takes place is essentially the same as that in the Hinton flocculation test. By centrifugating the incubated mixture before reading the results, advantage is taken of the fact that the "positive" floccules in the Hinton reaction rise to the top of the tube and tend to aggregate at the meniscus, where they are readily detected when present. Although similar in essential points, the microtest and the capillary test are described separately. In an evaluation series of tests on 300 blood specimens sent out under the auspices of the United States Public Health Service, each method demonstrated a sensitivity of 91.9 per cent and a specificity of 100 per cent. In a larger number of tests conducted in the routine of an infants' and children's hospital, the method has been found dependable and practicable. For emergencies, the tests appear to give accurate readings in one hour.

Journal of Nervous and Mental Disease, New York

85: 637-764 (June) 1937

Personality and Chronic Arthritis. G. C. Booth, New York.—p. 637.
Experimental Method for Production of Decerebrate Rigidity in Dogs by Vascular Occlusion. R. R. White, Rochester, N. Y.—p. 663.
Reaction of Certain Psychotic Types to Alcohol: Preliminary Report. C. E. Trapp and P. G. Schube, Boston.—p. 668.
The Social Background of Occupational Neuroses. E. Harms, Baltimore.—p. 689.
Sigmund Freud as a Neurologist: Some Notes on His Earlier Neurobiologic and Clinical Neurologic Studies. S. E. Jelliffe, New York.—p. 696.

Journal of Nutrition, Philadelphia

13: 567-700 (June 10) 1937

Hemoglobin Regeneration in Anemic Rats in Relation to Iron Intake with Suggestions for Improvement of Bio-Assay Technic for Measuring Available Iron. Margaret Cammack Smith and Louise Otis, Tucson, Ariz.—p. 573.
Effect of Galactose on Human Respiratory Quotient and Alveolar Carbon Dioxide. T. M. Carpenter, Boston.—p. 583.
Editorial Review: Nutritional and Metabolic Significance of Certain Organic Acids. A. H. Smith and J. M. Orten, New Haven, Conn.—p. 601.
Influence of Parathyroid Hormone, Urea, Sodium Chloride, Fat and of Intestinal Activity on Calcium Balance. J. C. Aub, Dorothy M. Tibbetts and Regina McLean, Boston.—p. 635.
Dietary Production of Syndrome of Deficiency in Vitamin B_6. Nellie Halliday and H. M. Evans, Berkeley, Calif.—p. 657.
Food Intake of Young Rats Held at Nearly Constant Body Weight by Restriction of Dietary Protein. C. M. Jackson, Minneapolis.—p. 669.
*Vitamin E. G. J. Martin, Winona, Minn.—p. 679.
Adsorption of Vitamin B by Plant Tissue (by Solanum Melongena Linn. and Raphanus Sativus Var. Longipinnatus Bailey) When Pickled with Salt and Rice Bran. C. D. Miller, Honolulu, Hawaii.—p. 687.

Vitamin E.—In investigating the antisterility effect of vitamin E on fifty-eight rats, Martin found that a great difference exists between the amount of vitamin E required for antisterility effect and for growth and that the concentrate formerly considered to contain one vitamin actually contains at least two —one growth stimulating and one having an antisterility effect. The evidence presented favors the possibility of a multiplicity of factors. Two different preparations showed no growth effect and yet showed an antisterility potency in females of proved sterility. The preparation of crystalline α-tocopheryl allophanate, from which pure vitamin E was regenerated by Evans and his co-workers, should permit definite proof of this point when the preparation is available in sufficient amounts. Growth and antisterility may be due to slight alterations in a basic structure.

Journal of Pharmacology & Exper. Therap., Baltimore

60: 97-234 (June) 1937

Pharmacologic Study of Certain Thiobarbiturates. O. M. Gruhzit, A. W. Dox, L. W. Rowe and M. C. Dodd, Detroit.—p. 125.
Effects of Anesthetic Doses of Sodium Thiopentobarbital, Sodium Thio-Ethamyl and Pentothal Sodium on Respiratory System, Heart and Blood Pressure in Experimental Animals. C. M. Gruber, with assistance of C. M. Gruber Jr. and N. Colosi, Philadelphia.—p. 143.
Pharmacology of Metasynephrin. E. M. Boyd, Kingston, Ont.—p. 174.
Studies on Calcium Creosotate: II. "In Vitro" Comparative Study of Efficiency of Calcium Creosotate, Calcium Guaiacolate and Creosote as Bactericidal Agents. E. J. Fellows, Philadelphia.—p. 178.
Id.: III. Elimination of Volatile Phenols in Rabbit Urine After Administration of "Calcium Creosotate Solution" and After Creosote Solution. E. J. Fellows, Philadelphia.—p. 183.
Comparative Study of Several Ultra-Short Acting Barbiturates, Nembutal and Tribrom-Ethanol. H. W. Werner, T. W. Pratt and A. L. Tatum, Madison, Wis.—p. 189.
Pharmacologic and Toxic Actions of Dextromiotine and Levomiotine. A. C. White, Beckenham, England, and E. Stedman, Edinburgh, Scotland.—p. 198.
Investigation of Possible Protective Action of Calcium Gluconate in Aspirin Poisoning. H. G. Barbour and Janet A. Porter, New Haven, Conn.—p. 224.
Action of Morphine and Its Derivatives on Contractions of Leech Muscle Due to Acetylcholine, Choline and Nicotine. J. H. Quastel and M. Tennenbaum, Cardiff, Wales.—p. 228.

Kansas Medical Society Journal, Topeka

38: 237-280 (June) 1937

Management of Injuries of Face and Jaws, with Especial Reference to Common Automobile Injury. E. C. Padgett, Kansas City, Mo.—p. 240.
*Insulin Shock Therapy: Critical Review. R. T. Morse, Topeka.—p. 248.
Acute Abdominal Disease. C. F. Dixon, Rochester, Minn.—p. 253.

Insulin Shock Therapy.—Morse reviews some publications dealing with insulin shock therapy in schizophrenia. Sakel, according to Glueck, adheres strictly to a biochemical hypothesis, which he sums up accordingly: "1. The insulin puts a barrier between the cell and external stimuli, thus putting the cell at rest and enabling it to recuperate. He assumes that by keeping the pathologically conditioned cell pathways in abeyance the original, normally conditioned pathways have a chance to reestablish themselves. 2. The profound, almost annihilating assault which the cell experiences during the insulin shock perhaps actually eliminates the recently established pathologic pathways and in the course of recovery from shock, only the older, well established, prepsychotic pathways become reanimated. 3. A general detoxication of the entire organism occurs through the effect of the insulin on the entire metabolic status." Glueck believes that "although the therapeutic approach is essentially of a biochemical nature, its effects so far as they lead to a modification of psychopathologic states can in no way be looked on as identical with those characteristics of a strictly causal therapy, such, for instance, as the psychoanalytic therapy of a hysterical phobia. On the contrary, one gains the impression of a radical and fairly rapid generalized disturbance of the vegetative, neurologic and psychic integration of the patient, which calls forth in its turn a rapid reintegration immediately on the neutralization of the hypoglycemia. But in addition to the important rôle which the sugar metabolism plays in this catabolic and anabolic process psychic factors seem also to be of considerable importance." He is of the opinion that the repeated insulin shocks may serve to clear the atmosphere, so to speak, of the neurotic and psychotic state, especially in view of the fact that these experiences of acting out are followed by an amnesia and thus escape ego and superego criticism with its subsequent guilt and shame. Glueck divides recovered patients into two groups: one with a distinct emphasis on the virtues of repression and an attitude that the past was best buried, and the other with a definite preference for the so-called working through and reintegration. If such is the case, a study of the tendency to relapse in these two groups should be of great interest.

Maine Medical Journal, Portland

28: 131-158 (June) 1937

Some Aspects of Injection Treatment of Hernia. S. A. Cobb, Sanford.—p. 131.
Protamine Zinc Insulin in Treatment of Diabetes Mellitus. E. R. Blaisdell, Portland.—p. 133.
The Medical Examiner System of Maine. G. L. Pratt, Farmington.—p. 135.

Missouri State Medical Assn. Journal, St. Louis

34: 185-218 (June) 1937

The Country Doctor: President's Address. R. A. Woolsey, St. Louis.—p. 185.
The Individualism of Medical Practice: Address of President-Elect. D. S. Conley, Columbia.—p. 187.
Treatment of Diabetes Mellitus, with Especial Reference to Diet and Use of Protamine Insulin. W. H. Olmsted, St. Louis.—p. 188.
Hypersensitivity to Pituitary Extract. G. F. Pendleton, W. G. Ball and W. Rhode, Kansas City.—p. 194.
Polyneuritis of Pregnancy: Treatment with Vitamin B_1: Case Report. G. W. Forman, St. Joseph.—p. 197.
*Hypertension Caused by Food Allergy. O. Liston, Oak Grove.—p. 199.
Some Eye Conditions of Interest to the General Practitioner. C. P. Dyer, St. Louis.—p. 202.

Hypertension Caused by Food Allergy.—Liston is convinced that certain foods ingested by individuals sensitive to them will cause overstimulation of the vasoconstrictor nerves of the arterioles, thus raising the blood pressure as long as any of the food remains in the system. Furthermore, he feels justified in stating that most of the vasoconstrictor action is on the arterioles, for he has repeatedly seen blood pressure of a duration of years fall to normal within four days after removal of the offending food, and this in persons whose arteries were sclerosed and tortuous. He has one patient sensitive to pork who cannot eat eggs fried in lard without a rise in blood pressure. Another patient was sensitive to wheat, and ingestion of any wheat caused a marked swelling of the tongue with an increase of 60 mm. of mercury in blood pressure. He has worked out the cause of the hypertension in about fifteen such patients. In all cases he uses either the elimination diet or skin tests of the foods for hypersensitivity.

Nebraska State Medical Journal, Lincoln

22: 205-244 (June) 1937

Mammography: Preoperative Visualization and Diagnosis of Breast Tumors by Contrast Roentgenograms. N. F. Hicken, Omaha.—p. 211.
Peripheral Vascular Disease: V. Thrombo-Angiitis Obliterans. C. W. McLaughlin Jr., Omaha.—p. 214.
Operative Lengthening of Lower Extremities. F. Teal, Lincoln.—p. 219.
Fixed Impaction in Fractures of Femoral Neck. C. F. Ferciot, Lincoln.—p. 222.
Hallux Valgus: Study of End Results of 339 Bunionectomies. W. R. Hamsa, Iowa City.—p. 225.
Skin Eruptions Due to Nupercaine and Pantocain. O. J. Cameron, Omaha.—p. 229.

New England Journal of Medicine, Boston

216: 1003-1050 (June 10) 1937

Diseases of Inhabitants of the Commonwealth. H. D. Chadwick, Boston.—p. 1003.
Galactose Tolerance and Urobilinogen Tests in Differential Diagnosis of Painless Jaundice. F. W. White, Boston.—p. 1017.
Chemistry and Legal Medicine. J. T. Walker, Boston.—p. 1024.

New York State Journal of Medicine, New York

37: 1005-1094 (June 1) 1937

Differential Diagnosis in Pulmonary Diseases. P. H. Ringer, Asheville, N. C.—p. 1005.
Diagnosis of Surgical Jaundice. R. Ottenberg and R. Colp, New York.—p. 1011.
Correction of Nasal Deformities. J. A. Cinelli, New York.—p. 1018.
Colon Bacillus Chemical Therapy: Degenerative Processes. R. C. Coburn, New York.—p. 1025.
*Ulcerations of Nasal Membranes and Perforation of Septum in Copperplating Factory: Unusual and Sudden Incidence. M. H. Barsky, New York.—p. 1031.
Sterility as Clinical Problem in Women. W. T. Pommerenke, Rochester, N. Y.—p. 1035.
Injuries and Infections: Study of Cases Occurring on the WPA Projects of Pelham Bay Area. H. Lowens, Bronx.—p. 1042.
Comments by a Country Doctor: Time—1893-1933. B. P. Allen, Oriskany.—p. 1049.

Perforation of Nasal Septum in Copperplating.—In March 1936 Barsky saw two employees of a copperplating establishment reporting for treatment of infected abrasions and acute coryza. They volunteered the statement that many of their co-workers suffered from similar complaints. Examination revealed the presence of shallow ulcerations of the nasal septum and turbinates. As a result of these observations, all employees of the plating department of this establishment were examined and a hygienic study of the premises was conducted. The disturbance was effectively corrected. There were no recurrences of the difficulties in the old workers, nor did any appear in new employees. The direct causes of the disturbance were improper control of baths, failure to exhaust the spray thus produced and inadequate general ventilation.

Pennsylvania Medical Journal, Harrisburg

40: 705-802 (June) 1937

Clinical Interpretation of Retinal Vascular Lesions in Hypertension and Nephritis. H. P. Wagener, Rochester, Minn.—p. 705.
Eczema—Uric Acid and Alkali Reserve. C. S. Wright and H. Brown, Philadelphia.—p. 711.
Mild and Obscure Forms of Urinary Obstruction. D. M. Davis, Philadelphia.—p. 714.
Necropsy Studies on Two Patients Dying in Asthma. K. Fowler, Philadelphia.—p. 720.
Negative Pressure Drainage of Chest Exudates. W. R. Davies, Scranton.—p. 724.
Cutaneous Anthrax. H. Gold, Chester.—p. 728.
Carcinoma of the Penis. H. W. Lyon, Punxsutawney.—p. 732.
Otitic Meningitis. G. B. Jobson, Franklin.—p. 735.
Significance of Size and Hemoglobin Saturation of Red Blood Cells in Clinical Study of Anemia. W. P. Belk, Ardmore.—p. 739.
Some Clinical Aspects of Lead Poisoning. T. A. Johnson, Drexel Hill.—p. 741.
Postprostatectomy Prospects. W. H. Haines and S. Miceli, Philadelphia.—p. 744.

Public Health Reports, Washington, D. C.

52: 763-790 (June 11) 1937

*Report of Two Outbreaks of Food Poisoning. J. C. Geiger.—p. 765.
Incidence of Spontaneous Tumors in Colony of Strain C_3H Mice. H. B. Andervont and W. J. McEleney.—p. 772.

Food Poisoning.—Geiger discusses the 110 reported cases in twenty-eight families that were affected in an outbreak of food poisoning traced to cream custard cakes from a bakery. Ample opportunity for contamination of the custard during its preparation, storage and handling were manifest on direct observation of procedures followed. Laboratory confirmation of the epidemiologic investigation included high bacteria colony counts per gram of custard—Bacillus coli and hemolytic and nonhemolytic strains of Staphylococcus aureus (heavy pigment producers); toxin formation by hemolytic Staphylococcus aureus on mediums rich in starch (produced marked vomiting and diarrhea in kittens on intraperitoneal injection). Control studies made on similar cakes several days later showed lower counts even on the third day, with Bacillus coli and nonhemolytic strains of Staphylococcus albus and aureus present. The second outbreak is that of botulism apparently due to European commercially canned antipasto. Of a group of sixteen persons eating dinner together, ten were hospitalized for the treatment of a condition presenting the clinical picture of botulism. Of the ten hospitalized persons, one was found not to present evidence of the intoxication, three died and six recovered. An additional person, who was not hospitalized, gave a history of certain symptoms and signs indicative of intoxication. The antipasto served at the dinner was a mixture of the contents of two cans, both imported. At the time of hospitalization, one of the patients said he had opened the can and was impressed by the "slushy" contents, which "squirted." This patient stated that the antipasto "did not taste right." Other members of the affected group commented on the "bitter taste" of the mixture. A 13 year old girl, liking the tuna fish especially, ate two pieces of it. She was the most seriously ill of the group and the first to die. The two cans involved were never recovered, so that positive and final proof of the source of the intoxication was not obtained. One of the brands had not been regularly distributed in California for about nine years and the stock in the involved grocery store had been on the shelves for approximately five years. That botulism was the cause of death was proved in two of the fatal cases when the toxin of Clostridium botulinum, type A, was demonstrated in the laboratory. The toxin was not demonstrated in the third fatal case.

Rhode Island Medical Journal, Providence

20: 87-104 (June) 1937

Diabetes Among the Moderns. J. S. Dziob, Providence.—p. 87.
*Spontaneous Subarachnoid Hemorrhage. C. A. McDonald and M. Korb, Providence.—p. 91.

Spontaneous Subarachnoid Hemorrhage.—McDonald and Korb report seven cases of spontaneous subarachnoid hemorrhage in order to call attention to the frequency of the disease

and its occurrence in patients without arteriosclerosis with hypertension, or neoplastic or anemic disease which bleeds. Four of the patients died and three recovered. None of them were known to be sick before the apoplexy. All of them showed symptoms and signs which led to recognition of the disease during life. The disease is not an uncommon condition and can be readily recognized by the syndrome of sudden severe headache, stiffness of the neck, double Kernig's sign, a bit of fever and a bloody spinal fluid.

South Carolina Medical Assn. Journal, Greenville

33: 139-160 (June) 1937

Distribution of State Medical College Graduates in South Carolina. J. T. Marshall, Barnwell.—p. 139.
Multiple Myeloma: Case Report. S. H. Shippey, Rock Hill, and W. K. McGill, Clover.—p. 141.

Southern Medical Journal, Birmingham, Ala.

30: 565-664 (June) 1937. Partial Index

*Tetanus Immunization with Alum-Precipitated Toxoid. A. McBryde, Durham, N. C.—p. 565.
Adamantinoma of the Tibia. E. L. Bishop, Atlanta, Ga.—p. 571.
Arthrodesis of Knee with Large Central Autogenous Bone Peg. J. A. Key, St. Louis.—p. 574.
Nevoxantho-Endothelioma: Its Relationship to Juvenile Xanthoma. J. H. Lamb and E. S. Lain, Oklahoma City.—p. 585.
*Pulmonary Changes in Patients Suffering from Malta Fever. R. H. Lafferty and C. C. Phillips, Charlotte, N. C.—p. 595.
Melitensis Infection: Treatment with Neoarsphenamine. C. W. Wainwright, Baltimore.—p. 600.
Relief of Chronic Intractable Bronchial Asthma by Intentionally Induced Ether Anesthesia. I. S. Kahn, San Antonio, Texas.—p. 609.
Complications of Advanced Biliary Tract Disease. W. D. Wise and R. F. Helfrich, Baltimore.—p. 617.
Ménière's Disease: Its Diagnosis and Treatment. W. E. Dandy, Baltimore.—p. 621.
Indications for Radical Sinus Surgery. J. G. McLaurin, Dallas, Texas.—p. 633.
Causes of Stillbirths: Preliminary Report Based on 2,000 Cases Occurring in Hospitals. Ethel C. Dunham and Elizabeth C. Tandy, Washington, D. C.—p. 643.
The Diet of Infants. C. H. Smith, New York.—p. 650.

Tetanus Immunization with Alum-Precipitated Toxoid.—McBryde has used alum-precipitated toxoid made from tetanus toxin of a minimal toxicity of 15,000 minimal lethal doses per cubic centimeter, which was detoxified by adding 0.3 per cent formaldehyde and incubating at 39 C. until a dose of 10 cc. of the material caused no tetanic symptoms when injected into guinea-pigs weighing 350 Gm. Equal parts of a 4 per cent solution of aluminum potassium sulfate were added to the plain toxoid and it was treated according to the method described by Wells, Gordon and Havens for diphtheria toxoid; 1 cc. of this material when injected into the guinea-pigs resulted, in forty days, in an average production of 6 units of antitoxin per cubic centimeter of blood serum. This was at least ten times the immunizing value of the original toxoid from which it was made. A group of ninety-four Negro children received subcutaneous injections of 1 cc. of this toxoid. Forty-five days later serums were collected for antitoxin titration, and seventy-three days after the first injection a second injection of 1 cc. of toxoid was given. Serum was again secured fifty-four days after the second injection, or 127 days after the initial injection. No severe reactions were encountered in the 180 injections given. Forty-five days after the first injection only two children had less than 0.01 unit of antitoxin per cubic centimeter. The great majority had from 0.01 to 0.1 unit per cubic centimeter. Thirteen children had more than 0.1 unit and two had 0.25 unit per cubic centimeter. When tested fifty-four days after the second injection, or 127 days after the primary dose, there were marked increases in the antitoxin content. Of the eighty-five children tested, no child had less than 0.1 unit per cubic centimeter, while five had values from 0.1 to 0.25 unit, eighteen had from 0.25 to 0.5 unit, twenty-six had from 0.5 to 1 unit and thirty-one had from 1 to 2 units per cubic centimeter. Three children had 2 units and two had between 3 and 5 units per cubic centimeter. Tetanus toxoid is of special value in children who are allergic. Many practitioners will wish to immunize in a routine manner the children under their care. Though the prevalence of tetanus is low, some children acquire the infection from wounds which are so trivial that no antitoxin would have seemed advisable at the time of injury. Present knowledge would indicate two injections of alum-precipitated tetanus toxoid at an interval of two months followed by a third injection at the time of injury. This will raise the serum antitoxin to the level reached by injection of 1,500 units of antitoxin.

Pulmonary Changes in Malta Fever.—Lafferty and Phillips are convinced that pulmonary changes occur in many persons who have undulant fever, and they are led to believe that there are pathologic processes in the lungs of some of these patients which, in all probability, are a direct result of the infection. Although x-ray observations in these cases do not exactly coincide with those of other observers, the disease often seems to manifest itself in the lungs by peribronchial congestion or, rather, diffuse bronchopneumonic process and rapidly progressing fibrosis. The authors have not had any experience with patients who have had extensive pneumonic processes, either lobar or lobular.

Texas State Journal of Medicine, Fort Worth

33: 71-206 (June) 1937

Has the Private Practice of Medicine Failed? H. R. Dudgeon, Waco.—p. 79.
The American Medical Association: Your National Society. C. G. Heyd, New York.—p. 83.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

45: 301-352 (June) 1937

Obstructive Jaundice: Further Studies on Differential Diagnosis by Roentgen Ray. F. S. Foote and H. G. Bell, San Francisco.—p. 301.
Surgical Anuria. J. G. Strohm, Portland, Ore.—p. 309
Surgical Mortality in Thyroid Disease: Study of Twenty-Five Fatalities in 2,070 Cases. W. P. Kroger and C. G. Toland, Los Angeles.—p. 316.
Basic Factors Involved in Proposed Electrical Methods for Measuring Thyroid Function: I. Effect of Body Size and Shape. A. Barnett, New York.—p. 322.
*Simple Procedure in Fractures of Spine. R. W. Binkley, Selma, Calif.—p. 327.
Paraffinoma of Knee: Case Report. P. E. Johnson, New York.—p. 331.
Hypophysial and Hypophysial-like Gonadotropic Hormones: Review. B. Krichesky, Los Angeles.—p. 334.

Simple Procedure in Fractures of Spine.—Any one who has seen patients with spinal fractures immediately placed in plaster has encountered in some of them an uncontrollable train of abdominal symptoms and has seen some become so distended as to require removal of the plaster or require opiates in large quantities. While handling one such patient, a nurse who had previously required considerable abdominal surgery, Binkley sought a temporary measure that might do no harm until these abdominal symptoms could subside. She was accordingly placed on an ordinary Simmons bed which had the usual back rest and knee support controlled by cranks, her head being placed at the foot of the bed with the site of fracture just over the apex of the elevation. The degree of hyperextension could readily be controlled by turning the crank at the foot of the bed. This accomplished the results so satisfactorily that she was never changed until roentgenograms showed that she was ready for a brace. Both anteroposterior and lateral roentgenograms were taken without removing the patient from the bed, and the method proved so satisfactory that it has since been employed with equal success in four other cases.

Wisconsin Medical Journal, Madison

36: 413-508 (June) 1937

Treatment of Fractures by Use of Wire Fixation. J. O. Dieterle, Milwaukee.—p. 427.
Treatment of Cancer of Rectum by Electrocoagulation. J. A. Johnson, Minneapolis.—p. 430.
Functional and Organic Disorders: Relative Incidence. Marie L. Carns and Annette C. Washburne, Madison.—p. 435.
The County Asylum: A Hospital in Fact. H. H. Christofferson, Colby.—p. 438.
Needs for Closer Cooperation Between State and County Institutions. M. K. Green, Mendota.—p. 439.
State Board of Control Medical Program. J. J. Hannan, Madison.—p. 442.
Atypical Tuberculosis: Report of Cases. R. H. Stiehm, Janet McCarter and H. R. Getz, Madison.—p. 451.
Molluscum Contagiosum: Report on Series of Seven Cases. L. R. Cole, Madison.—p. 454.
The Wisconsin Venereal Disease Program. H. M. Guilford, Madison.—p. 457.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 1057-1102 (May 22) 1937

Perspective and Poise in Practice. R. A. Young.—p. 1057.
*Enuresis in Children: Report of Seventy Cases. H. G. McGregor.—p. 1061.
Acute Lymphocytic Meningitis. W. Hughes.—p. 1063.
Bilateral Tubal Pregnancy: Report of Case. Muriel B. McIlrath.—p. 1065.
Intra-Epidermic Vaccination. E. R. Peirce.—p. 1066.
Nocifensor Lesion of Hand: Syndrome Following Trauma and Associated with Adduction of Shoulder. G. J. Lillie.—p. 1068.
Influenza and Industry. W. Blood.—p. 1079.

Enuresis in Children.—McGregor discusses seventy cases of enuresis in children treated for the most part by securing the patient's interest in his own complaint. The enuresis had in each instance been present since birth, but cases of enuresis in mentally deficient children have not been included. A physical examination was made to exclude organic disease. In the absence of this the child was presented with a small calendar, to be kept by the bedside, on which the date of each dry night was to be recorded by the patient himself. Beyond spending the necessary time to interest the child in these measures and seeing the patient at regular intervals afterward, no treatment was used and no medicines were prescribed. The treatment is best carried out at a clinic, where the atmosphere of competition and enthusiasm that prevails in the waiting room is an adjuvant to success. At least 60 per cent of cures maintained over a length of time were obtained. Whatever may be the psychologic significance of enuresis, and however important the coexistent physical defects in initiating or maintaining it, it seems reasonable to regard the failure to outgrow the habit at the normal age as a neural motor reaction in response to many different environmental situations and bodily states, whether emotional, physical or a mixture of the two, and to assume that in no two cases is it due to an identical combination of factors. At all events it is quite possible to persuade most of the children to change the habit by simple encouragement or by other suggestive means; nor is the task laborious.

East African Medical Journal, Nairobi

14: 33-78 (May) 1937

Eradication of Glossina Palpalis from River Areas by "Block" Method. C. B. Symes and R. T. Vane.—p. 35.
Variations in Blood Pressure and Their Clinical Significance: Part II. J. R. Gregory.—p. 42.
Medical Practice in Kashmir. Edith N. Hartley.—p. 64.

Lancet, London

1: 1263-1318 (May 29) 1937

The Bismuth-Iodoform-Paraffin Paste Method of Treatment of Acute Osteitis. J. H. Saint.—p. 1263.
*Left Inframammary Pain: Metabolic Investigation. K. S. Smith, A. S. Hall and J. Patterson.—p. 1267.
New Machine for Self Administration of Gas and Oxygen Analgesia in Labor. A. Barr and A. Tindal.—p. 1271.
Chemotherapy of Streptococcic Infections with *p*-Benzylamino-Benzene Sulfonamide. B. A. Peters and R. V. Havard.—p. 1273.
Some Observations on Case of Pulmonary Edema. G. Graham and R. Burn.—p. 1274.
Acute Ascending Flaccid Paralysis. J. Shafar.—p. 1275.
Lymphatic Leukemia with Bilateral Mammary Changes: Report of Case. B. Joan Haram.—p. 1277.
Reactivation of Tuberculous Focus by Micro-Organisms Other Than Tubercle Bacillus. W. Pagel.—p. 1279.

Left Inframammary Pain.—Smith and his associates describe the syndrome frequently known as left inframammary pain. The salient points discussed are: (1) the existence of a group of symptoms of which left inframammary pain was the chief, (2) the obvious rôle of physical or mental fatigue in producing or aggravating the syndrome, (3) a condition in which the blood sugar generally tended to fall to abnormally low fasting levels and in which a state of increased sugar tolerance was found, and (4) the prevalence among these patients of particular types of electrocardiogram. An account is given of an investigation into the clinical features and metabolism of twenty-six patients suffering from the left inframammary pain syndrome, but from no recognized organic disease in any system. About half of the experimental group showed abnormally low fasting blood sugar, even though the figure of 70 mg. per hundred cubic centimeters was taken as the lower limit of the normal. Sugar tolerance curves often showed an increased tolerance, the curves reaching an early, and frequently low, peak. On the other hand, in two patients an unsuspected diabetes was brought to light, and in three others hyperglycemia without glycosuria. The electrocardiogram in the subject having left inframammary pain is found frequently to show certain features heretofore regarded as normal. The following changes would ordinarily be grouped among normal tracings but occurred with such frequency among these patients that they have received special attention: 1. T_1 not greater than P_1 in amplitude. 2. T_2 not greater than P_2 in amplitude. Diphasic T_2 or T_3 with or without 1 or 2, or 1 and 2. One or more of these conditions were fulfilled in sixteen patients. It is suggested that this pain is the cardiac expression of a metabolic derangement that affects the body as a whole and that the disturbance is related to an underlying endocrine imbalance.

Practitioner, London

138: 553-664 (May) 1937

The Treatment of a Case of:
Hypertensive Heart Disease. W. T. Ritchie.—p. 553.
Angina Pectoris. J. Hay.—p. 562.
Thyrotoxic Heart Disease. T. F. Cotton.—p. 571.
Congenital Heart Disease. C. Harris.—p. 577.
Syphilitic Heart Disease. G. Bourne.—p. 585.
Rheumatic Heart Disease. B. Parsons-Smith.—p. 594.
Value of Electrocardiogram in General Practice. A. Schott.—p. 603.
*The Use of Insulin in Nondiabetic Malnutrition, with Especial Reference to Pulmonary Tuberculosis. P. Ellman.—p. 613.
Treatment of Gonorrhea and Its Complications. H. Dodd.—p. 624.
Clinical Indications for Use of Specific Hormone of Corpus Luteum. C. Clauberg.—p. 634.
General Practice: XI. Writing Medical Papers. H. Rolleston.—p. 642.

Use of Insulin in Nondiabetic Malnutrition.—Ellman emphasizes that insulin is not to be regarded as a cure for pulmonary tuberculosis. Its indiscriminate use is fraught with danger and, as with so many other valuable therapeutic measures (e. g., artificial pneumothorax), inevitably brings it into disrepute. There are some who claim that insulin can be used in all cases of pulmonary tuberculosis. His own experience has failed to show any appreciable results in advanced active disease, although good results have been claimed in such cases. A patient whose appetite is poor, who fails to put on weight, who is afebrile, whose disease shows no gross evidence of activity and with whom the usual medicinal measures have failed to correct these symptoms is eminently suitable for insulin therapy. The author has avoided using insulin when there is fever, active pulmonary disease, hemoptysis or marked hypotension or when severe reactions follow the injections. It has been his practice to begin the course of treatment with a hypodermic injection of 5 units of insulin. This is given twenty minutes before the principal meal and is followed three hours later by a glass of milk or a tablespoonful of dextrose to avoid any risk of hypoglycemia. The injection of 5 units is continued daily for the first week. This dose is increased by 5 units weekly, so that in the sixth week 30 units daily is given (15 before lunch and 15 before dinner). The course of insulin treatment is from two to three months. It can be repeated at intervals and the author has sometimes given two or three courses, although in many cases the effects of insulin have been maintained after the first course has been discontinued.

South African Medical Journal, Cape Town

11: 327-362 (May 8) 1937

A Cavalcade of Cases. D. Campbell-Watt.—p. 329.
Lymphogranuloma Inguinale in South Africa. M. H. Finlayson and F. W. F. Purcell.—p. 335.

Bull. of Health Org., League of Nations, Geneva

6: 1-128 (Feb.) 1937

Recent Additions to Our Knowledge of "Anopheles Maculipennis" Races. L. W. Hackett.—p. 1.
Seventh Analytic Review of Reports from Pasteur Institutes on Results of Antirabies Treatment. A. G. McKendrick.—p. 17.
Report on the Health Mission in Spain. A. Lasnet, Laigret and C. Wroczynski.—p. 56.
Medical Exploration in Liberia. L. Anigstein.—p. 93.

Annales de Dermatologie et de Syphiligraphie, Paris

8: 337-432 (May) 1937

*Pigmented Basal-Cell Epitheliomas (Contribution to Pathologic-Anatomic Research). J. Gaté, G. Massia and J. Delbos.—p. 337.
Exotic Epidermophyte: Case. J. Payenneville and E. Rivalier.—p. 378.

Pigmented Basal-Cell Epithelioma.—Gaté and his associates describe a variety of basal-cell epitheliomas with a histologic picture characterized by an abnormal quantity of pigment granules. There are a number of other neoplasms belonging to this group which to a smaller degree likewise contain pigment granules. But the variety described is differentiated by its abnormally large admixture of pigment bodies within the neoplasm. In the initial stage the small cell shows a well defined chromatic nucleus and very fine pigmented granules at the outer zone of the cytoplasm. In the next stage the nucleus begins to be less visible; the pigment granules become larger in size and quantity until they finally occupy the whole cell. In the third, adult, stage the cell is just a bag of pigment granules and has no nucleus whatever. In the final stage of senescence the cell walls are being destroyed and the pigment granules are spilled. These basal cells are encountered at the periphery of cancerous growths and are more abundant in their center. This pigmented cell is of epithelial origin, in the basal layer of which there are dendritic cells suspected of producing melanin (melanoblasts) and distributing it along their branches. It seems that there is a sort of symbiosis between these so-called Langerhans cells and the cancerous cells. When the basal layer is encroached on by the neoplasm it provokes a hyperformation of pigment, which subsequently migrates toward the irritating lesion. Those melanomas are rare and it is extremely difficult to establish their etiologic factors. Its histologic peculiarity imparts its brown, gray or dark appearance and with the help of the dopa reaction melanoblasts may be differentiated from melanophores. However, the morphologic aspect of those elements always remains different from that of cancerous cells. The neoplastic tissue is often intimately permeated by connective tissue fibers and along those fibers it is possible for the pigment cells to become settled even as far as the center of the tumor. Any intervention for bioptic specimens may stimulate the neoplastic process. It is therefore prudent to suspect every pigmented neoplasm of being malignant and to make a biopsy only after physical therapy has been instituted. For the same reason any surgical intervention is regarded as dangerous. The authors are in favor of roentgen therapy, for which purpose they use from 3,500 to 4,000 roentgens without filter, a spark gap of 18 cm., 4 milliampere current and a focus-skin distance of 22 cm. To secure a thorough irradiation it is well to use fields extending from 2 to 5 mm. beyond the borderlines of the neoplasm. After about a week the tumor begins to ulcerate. At this stage no curet or scissors may be used. It is enough to use warm physiologic solution of sodium chloride applied with a syringe. The wound is then covered with an ointment of bismuth subnitrate and zinc oxide and dressed. Some authors prefer diathermocoagulation, perhaps because of its greater cosmetic value. But it is a painful procedure and it must be preceded by a locoregional or local anesthesia. Care must be taken to inject any healthy tissue with the anesthetic. The first treatment consists in forming a barrier by a series of small coagulations against dissemination. The second treatment consists of coagulating layer after layer, the layers being shaved off until healthy tissue is reached. The dressing may be dry or slightly greased. Cicatrization takes about three weeks.

Annales de Médecine, Paris

41: 265-344 (April) 1937

Fever in Myeloid Leukemia. Intermediate Forms Between Myeloid Leukemia and Acute Leukemia. J. Olmer and J. Boudouresques.—p. 265.
Induced Complementary Pleurisy of Therapeutic Pneumothorax. P. Pavie, P. Lefèvre and G. Rossignol.—p. 291.
*Hypersensitivity to Insulin. J.-L. Masek and C. Klir.—p. 301.
Relation Between the Pathogenic Power and the Evolution Cycle of Some Germs and of the Streptococci in Particular. R. Nativelle.—p. 334.

Hypersensitivity to Insulin.—Masek and Klir have noticed that the hypoglycemia which follows the injection of insulin differs considerably in diabetic from nondiabetic patients, notably those with cirrhosis, obesity, cachexia, pernicious anemia or certain neuroses. After reviewing the various hypotheses regarding the physiologic reaction to insulin treatment the authors accept the view that insulin is fixating dextrose in the tissues in unstable combinations. This takes place in the intramuscular and subcutaneous spaces outside the blood stream in a form analogous to protein sugar. During all their investigations the authors were mindful of the dextrose regulatory influence of other glands with internal secretion and their direct action on insulin. This resistance to insulin may have a humoral aspect, but it may also assume contraregulatory qualities (adrenals and hypophysis), seen mostly in diabetic patients in whom the islands of Langerhans are not affected. In those rare cases it is assumed that the increase in the proportion of peptic ferments inactivates the insulin. In their effort to determine the capillary glycemia in fasting patients they gave equal injections of insulin to patients with a high percentage of glycemia with acetonuria and to some with less than 180 mg. per hundred cubic centimeters of glycemia and no acetonuria. In this manner they found that patients with grave diabetes are slower in recuperating to former levels of their carbohydrate metabolism. Having obtained similar data in patients with hyperthyroidism, they consider the strong diminution of the glycemic index as the expression of a functional disturbance in the contraregulatory apparatus. At the same time they arrived at the hypothesis that nutritional factors (diet deficient in carbohydrates) as well as secondary factors (phlorhizin or endocrine disturbances) which tend to diminish the carbohydrate reserves have a pronounced influence on the abnormal development of the blood sugar. In animals in which they brought about an artificial carbohydrate deficiency they made the observation that the hypoglycemic phase was greater and of longer duration when insulin was followed by an injection of epinephrine. The authors deem it necessary for the sake of solving the problem to give greater attention to internal chemical conditions. This would mainly concern the possible relations between the phenomena discussed and those of the so-called protein sugars.

Annali Italiani di Chirurgia, Bologna

16: 183-289 (March) 1937

Ambard Formula, Clearance Urea and Ratio Urea After Operations. L. Baccarini and M. Pazzi.—p. 183.
*Donaggio Reaction, Platelets in Blood and Velocity of Sedimentation in Postoperative Period. G. Perazzo.—p. 199.
*Modifications of Lung Parenchyma After Cervical Sympathectomy. A. Biasini.—p. 221.
Cause of Death in Experimental Choleperitoneum. D. Divella.—p. 249.

Donaggio Reaction After Operations.—Perazzo followed the behavior of Donaggio's obstruction phenomenon of the urine in relation to the amount of platelets in the blood and the velocity of sedimentation after operation. His observations were made in a group of twenty patients suffering from chronic or acute surgical disease, tumors and cancer. Surgical trauma induces rapid but transient appearance of the obstruction phenomenon of the urine which follows the clinical evolution of the postoperative period. The intensity of the phenomenon depends on the seriousness of the operation performed. There is thrombopenia. The velocity of sedimentation parallels the curve followed by the obstruction phenomenon. The reaction of the obstruction phenomenon, however, is rapid and transient, whereas the velocity of sedimentation increases late and slowly decreases to normal figures. According to the author, the obstruction phenomenon is due to elimination of blood colloids through the urine. The colloids originate in a process of cellular disintegration from surgical trauma. Thrombopenia is due to the antitoxic functions of the platelets on the colloids in the blood.

Modifications of Lung Parenchyma After Sympathectomy.—Biasini made an x-ray and anatomic study of the modifications of the lung parenchyma in experimental cervical sympathectomy. He states that the modifications depend on the degree of sympathectomy and the side on which it is done. Unilateral sympathectomy induces reduction of the bronchioles and small blood vessels, which is more accentuated in the lung of the side on which the operation was done. The modifications of the vessels and bronchioles are more accentuated after bilateral sympathectomy. They are more intense at the upper field of the right lung. The modifications induced by unilateral or bilateral sympathectomy are more accentuated a long time after the operation. They are due to permanent changes in

the circulation of the lung due to disturbances of the sympathetic innervation of the organ. The modifications of the heart originate partially in local disorders of sympathetic innervation. Cervical sympathectomy induces elevation of the diaphragm, especially of the right side, probably through anatomic phrenic and cervicosympathetic connections. The author says that the results of the experiments show the dangers of cervical sympathectomy in the clinical field and the advisability of not resorting to the treatment.

Clinica Ostetrica, Rome

39: 313-372 (June) 1937

Pathogenic Relations of Pregnancy to Cancer of Uterus. G. Nicoletti. —p. 313.
Cancer of Uterus Developed After Roentgen Therapy of Internal Genitals.—G. De Lauretis.—p. 321.
Diagnostic Error in Case of Hydatidiform Mole. F. Matteace.—p. 327.
*Staining Tissues of Biopsy, from Aspiration: Technic. M. Aglialoro. —p. 338.
Pregnant Retroversed Flexed Uterus: Case. P. Gall.—p. 340.

Technic for Aspiration Biopsy.—According to Aglialoro, uterine curettage is the classic method for diagnosis of intra-uterine infections and tumors. Next in importance is biopsy by aspiration of fragments of the uterine mucosa, which is indicated when intra-uterine curettage is contraindicated. The author's technic for a biopsy is as follows: The fragments of the uterine mucosa are placed in a glass tube containing sodium salt solution, are separated and then are fixed in acetone for a few minutes. The fragments are then frozen and sectioned. The sections are stained with a mixture consisting of three parts of a 1 per cent aqueous solution of eosin, seven parts of acetone, five parts of methylene blue aqueous solution and five parts of alcohol at 95 degrees. The slides are placed in the staining solution and the latter warmed until the acetone odor is entirely gone. Then the slides are left undisturbed in the solution for five or ten minutes more to take an even stain. The latter is then wiped off the slides with drying paper. The sections are mounted with Canada balsam or syrup of acacia. Sections thus obtained are very clear. A diagnosis can be made promptly because of the fact that the entire process requires little time.

Arch. Urug. de Med., Cir. y Especialid., Montevideo

10: 541-684 (May) 1937

Past, Present and Future of Gynecology. A. Turenne.—p. 541.
*Pregnancy and Pulmonary Tuberculosis. J. Infantozzi.—p. 559.
Fermentative Diarrhea and Dyspepsia in Infants: Simple Treatment. V. Zerbino.—p. 574.
Acute Abdominal Diseases in Children. R. M. Del Campo.—p. 586.
*Roentgen Sign of Acute Psoitis. B. Varela Fuentes and J. Iraola.—p. 593.
Physiopathology of Respiration: Prolongation of Dead Respiratory Space for Hyperventilation of Lung. J. Duomarco and C. Diaz Romero.—p. 599.
Hydatid Cyst of Breast. R. Charlone and L. Sacco Ferraro.—p. 607.

Pregnancy and Pulmonary Tuberculosis.—Infantozzi states that the transplacental origin of tuberculosis has been proved. The filtrable tubercle virus may pass through the placenta and contaminate the fetus, which is born apparently normal and later on develops tuberculosis. Pregnancy, labor and the puerperium, especially if they take place repeatedly, stimulate development of latent tuberculosis and aggravate the condition if it is present before pregnancy. Pulmonary tuberculosis often induces abortion or premature delivery. The infants may be born normal or apparently so. In the latter case they are under weight, are congenitally weak and may die in early infancy. It is advisable not to allow marriage, pregnancy and lactation to women suffering from pulmonary tuberculosis. If pregnancy takes place, however, expectant treatment, with the patient under medical supervision, is indicated in fibrous or healed tuberculosis and if the disease has been controlled for more than three years, especially in patients who are in favorable economic and social condition. If tuberculosis is in evolution, it is advisable to stop pregnancy if the patient reports for examination before the third month. Otherwise pregnancy may continue with the patient under medical supervision. Pregnancy aggravates tuberculosis in evolution and the severe forms, especially laryngeal and active ulcerocaseous tuberculosis. Congestive and pleural forms also are aggravated, but not so intensely as the severe forms. Women suffering from apyretic chronic tuberculosis with cavitation can stand pregnancy fairly well. Infants of tuberculous mothers have to be given the Calmette vaccine and be placed away from the mother in a home of healthy people, preferably living in the country. The infants have to be nursed by healthy women and never by the mother.

Roentgen Sign of Acute Psoitis.—The sign described by Varela Fuentes and Iraola consists of the deformation of the roentgen shadow of the psoas muscle, which is wider than that of the normal muscle on the other side and shows a convex outline from the first lumbar vertebra to the iliac crest, instead of the straight border shown by the shadow of the normal side. The deformation appears early in the development of psoitis, at a time when flexion of the thigh and the signs previously described are not as yet in evidence. The sign is of value in the early diagnosis of acute psoitis, especially if it is located high and in the differential diagnosis of the condition from acute appendicitis, as it shows inflammation of the muscle. In the author's case the operation confirmed the diagnosis. An abscess was found at the upper part of the muscle, deeply seated against the vertebrae. Roentgenograms taken one month after the operation showed correction of the deformed roentgen shadow.

Prensa Médica Argentina, Buenos Aires

24: 1147-1192 (June 9) 1937

Tuberculous Bacillemia of Recurrent Evolution. A. A. Raimondi and F. M. Gonzales.—p. 1147.
Complete Roentgen Visualization of Aneurysmatic Dilatation of Left Auricle in Frontal Position. J. J. Beretervide, C. F. Cárrega Casaffousth and R. A. Pereyra.—p. 1152.
*Atheroma of Aorta, Ulcerated and Infected: Clinical Diagnosis Verified at Necropsy. J. I. Sacon and S. Zimman.—p. 1162.
Jalaquier and Similar Incisions: Importance of Vascular Lamina of Epigastric Vessels. A. R. Albanese.—p. 1165.
Osteomyelitis of Hip Bone and Acute Arthritis. A. Bercovich and J. M. Solari.—p. 1167.
Pure Mitral Stenosis with Embolism of Sylvian Artery in 10 Year Old Child. F. Bazán and R. Maggi.—p. 1172.

Atheroma of Aorta.—Sacon and Zimman's patient, aged 71, was apparently in good health when he developed an intense pain in the left leg, fever and chills. On examination, he was found to be suffering from senile arteriosclerosis. An intermittent claudication of the leg had developed a short time before. The second aortic sound was accentuated and it was of a clangorous character. A clinical diagnosis of ulcerated, aortic emboligenic aortic atheroma was made. There was no time to take a cardio-aortic teleroentgenogram because of embolism of the sylvian artery. The necropsy showed the presence of generalized atheroma all through the entire arterial tree. The arteries were the seat of a process in which old and new areas of atheroma, freshly formed ulcers and scars of old healed ulcers occurred in alternation. According to the author, generalized sclerotic atheroma may follow a chronic evolution for some indefinite time. During this time focal transitory atheromatous infection may be produced, with fever and slight arterial obstruction, which is spontaneously cured or without arterial obstruction at all. Emboligenic infected ulcerated atheroma is fatal. Its development and the mechanism of production of the consequent septicemia parallel those of venous septicemia and malignant endocarditis. In venous septicemia the intravenous septic foci induce a migrating thrombophlebitis and repeated embolism to the lungs. In malignant endocarditis the septic intracardiac foci cause cardiac disturbances and embolism to the arterial system. In ulcerated, infected atheroma the intra-arterial septic foci cause atheromatous septicemia and a bombardment of embolisms in the splanchnic and peripheral arteries.

Klinische Wochenschrift, Berlin

16: 841-872 (June 12) 1937. Partial Index

Alimentary Formation of Acetone Bodies from Food Fats in Human Subjects. S. Markees.—p. 841.
*Vitamin C Deficit During Pregnancy and Lactation. G. Gaehtgens and E. Werner.—p. 843.
Adenoma of Island Cells of Pancreas: Two Cases. G. Reiter.—p. 844.
*What Disinfecting Substance May Be Used in Determination of Blood Alcohol According to Widmark? J. Gutschmidt.—p. 849.
Unsaturated Fatty Acids in Blood of Healthy Women During Pregnancy and Puerperium. O. Mühlbock.—p. 853.
C Vitamin and Defense Against Infections. S. Thaddea.—p. 856.

Vitamin C Deficit During Pregnancy.—Gaehtgens and Werner investigated by means of the serial tolerance test of Jezler and Kapp whether healthy pregnant and lactating women

have a vitamin C deficiency. They found that 62 per cent of the women who were pregnant for the first time had a vitamin C deficit and that 70 per cent of those who had been pregnant before had a vitamin C deficit. Tests made during the period of lactation do not permit the conclusion that lactation as such increases the vitamin C requirements. A vitamin C deficit, which existed during pregnancy, was not further increased by the process of lactation.

Disinfecting Substances for Determination of Blood Alcohol.—Gutschmidt directs attention to the fact that the substances which are used for disinfecting the ear lobe or the finger tip previous to withdrawing a blood specimen for the determination of the alcohol content should not contain volatile or oxidizable substances such as alcohol, because the use of such substances may lead to errors in the determination of the alcohol content of the blood. He describes studies on various disinfectants, which led him to differentiate three groups: To the first group belong those which evaporate on the skin and which, if sufficient time is allowed to elapse before withdrawal of blood, will not change the blood alcohol values. However, these are not suitable for practical use, because it is usually impossible to await complete evaporation. This group includes alcohol, ether, benzine and so on. To the second group belong substances that do not evaporate on the skin but rather in Widmark's test tube, where they may effect reduction. To the third group belong substances that do not influence the titration values. The author concludes that only the latter group, which includes mercury bichloride and mercuric oxycyanide, is suited for the disinfection of the skin, when the alcohol content of the blood is to be determined.

Münchener medizinische Wochenschrift, Munich

84: 881-920 (June 4) 1937. Partial Index

Removal of Toxic Foci and Prophylaxis of Rheumatism. A. Slauck.—p. 881.
*Survival Value and Mortality of Premature Births. H. Siedentopf.—p. 884.
Erythrocytometry in Healthy and Diseased Persons. W. Schmidt-Lange and S. Schreck.—p. 886.
*Acute Myeloblastic Leukemia After Malaria Therapy in Dementia Paralytica. R. Adelheim.—p. 889.
Differential Diagnosis: Hysterical or Epileptic Attack. H. Krisch.—p. 897.

Mortality of Premature Births.—Siedentopf reports the results of studies on the survival value and mortality of 1,012 premature births. These premature infants were born at the Leipzig clinic from 1920 to 1923. During 1934 and 1935, that is, from ten to fourteen years after birth, 188 of the original number could be ascertained to be alive and 100 of them could be subjected to an examination, while information could be obtained about the other eighty-eight. It was found that, among those prematurely born who survive beyond the age of 10, physical or mental defects are not greater than among other children. Thus it can be said that prematurely born infants who complete the first decade of life have the same prospects as children who were not born prematurely. In discussing the mortality of premature births the author states that there were 305 stillbirths, 152 patients died at the clinic, 110 died before the end of the first three months, forty-two died before the completion of the first year and twenty-seven died later. Of those who weighed less than 1,000 Gm. at birth, none left the clinic alive. The author thinks that the children who die at the clinic, that is, under the best possible care, are not viable but that among the others, who died later, there were many who, under suitable care, might have survived.

Acute Myeloblastic Leukemia After Malaria Therapy.—Adelheim reports the clinical history of a woman, aged 55, who was subjected to malaria therapy on account of dementia paralytica. An acute leukemia developed and the patient died. To be sure, it is not known whether the leukemia existed before the vaccination malaria, but if so, the exacerbation at least must be ascribed to the influence of malaria. However, in view of the fact that the woman's general condition was favorable before the malaria therapy was begun, it is not probable that the leukemia existed before. The slight splenic tumor that existed previously but increased enormously during the malaria attacks may have been of syphilitic origin. The author believes that the malaria therapy caused the acute leukemia. He advises blood tests in the course of malaria therapy and thinks that hematologic studies on a large number of patients undergoing this treatment will reveal interesting data on the condition of the blood during malaria.

Strahlentherapie, Berlin

59: 1-188 (May 26) 1937. Partial Index

Persistent Carcinomas of Lip and Their Cure. A. Hintze.—p. 1.
Ray Therapy of Cutaneous Cancers, with Especial Consideration of Radium Technic. R. Müller.—p. 45.
Qualitative and Quantitative Thrombocytic Blood Picture in Chronic Myeloid-Leukemic Reaction (Myeloid Leukemia) Under Influence of Roentgen Treatment: Indications and Contraindications. J. Arneth.—p. 104.
Action of Therapeutic Roentgen Doses on Electrolyte Content of Plasma and Erythrocytes in Exophthalmic Goiter, Leukemia and Pulmonary Tumors. Frida Schmitt and W. Basse.—p. 119.
Production of Mutations by Beta Rays of Radium in Drosophila Melanogaster. K. G. Zimmer, H. D. Griffith and N. W. Timoféeff-Ressovsky.—p. 130.
*Depth Dose in Epilation Irradiations of Head. A. Proppe.—p. 139.
*Roentgen Lesions Following Therapeutic Irradiation. J. Körbler.—p. 146.

Depth Dose in Epilation of Head.—Proppe says that the most important problem in the roentgen epilation of the head is the possibility of an impairment of the brain. He made experimental studies in order to obtain more information about this problem. Being convinced that the depth doses determined on water and paraffin phantoms cannot be applied to the human cranium, he made experiments on a skull from an adult. He found that, when epilation is done by means of 300 or 400 roentgens, approximately 105 or 140 roentgens reaches the cerebral cortex. He thinks that such a dose is probably harmless as far as adults are concerned but that in children it should be considered that the brain cells might have a greater sensitivity to rays and that the dose reaching the brain is higher, because the cranium is thinner and poorer in calcium. Investigations on the possibility of injury to the cerebral cortex at the sites of overlapping of the ray action led him to conclude that in the region of the cerebral cortex the overlapping of the fields of irradiation does not result in the dangerous increases in dosage that are occasionally observed on the scalp. This explains why in severe roentgen injuries of the scalp there are no lesions in corresponding localizations on the cerebral cortex. However, since in case of irradiation from several sides it is the region of the basal ganglions, of the thalamus and of the hypophysis which is in the cross-fire of the rays, the author made experimental studies on the dose that reaches this region. He determined that, if the rays are applied from four different directions, 70 per cent of the surface dose will reach this region; if applied from five directions, from 80 to 85 per cent; and, if applied from six directions, from 110 to 120 per cent. In children the depth doses are even larger. The author advises that, in the after-examinations of patients who have undergone roentgen epilation, not only a possible impairment of the intelligence should be searched for but also changes in the functions that are controlled by the basal ganglions. Moreover, he thinks that Schreus's irradiation from four sides is the method of choice for roentgen epilation. He advises against irradiation from five or six directions.

Roentgen Lesions Following Therapeutic Irradiation.—Körbler says that, in spite of the fact that many roentgenologists assert that they have never seen roentgen burns, it must nevertheless be admitted that such burns do occur. To be sure, they are often not seen by the one who has caused them, but by others, for they often appear years later. The author cites a case from the literature, in which a roentgen lesion recurred thirty-three years after the surgical cure of the first roentgen lesion and thirty-six years after the irradiation. He then describes several cases of late roentgen lesions which he himself observed. Among the patients with late roentgen lesions there is a surprisingly large number of physicians. He ascribes this to the fact that physicians more readily observe the changes that at first are rather inconspicuous. Moreover, physicians mention the earlier roentgen therapy in the anamnesis, whereas lay persons either ignore the slight changes or fail to mention the earlier roentgen treatment, when they request medical aid. Another explanation might be that in physicians more often than in lay persons other eliciting causes, such as subsequent irritations, are added, for there are usually other

factors besides the roentgen irradiation which cause the late sequels. The author further discusses regional differences in the sensitivity of the skin to roentgen rays, pointing out that the skin of the palmar surface of the hands and that of the neck is especially sensitive to roentgen rays. Regarding the prevention of roentgen lesions, he says that great caution is necessary in cutaneous irradiations and that the irradiated skin must be carefully guarded against all irritations, be they of a mechanical, chemical or thermic nature. Even exposure to the rays of the sun is dangerous. The author also stresses the necessity of keeping exact records of every irradiation, particularly of the dosage.

Wiener medizinische Wochenschrift, Vienna

87: 661-688 (June 19) 1937. Partial Index

Pathology and Therapy of Tabes. J. Wagner-Jauregg.—p. 661.
Preparatory and After Treatment in Gastro-Intestinal Surgery. R. Friedrich.—p. 664.
*Denervation of Renal Pedicle in Essential Hypertension. W. Löwenstein and A. Weissmann.—p. 675.

Denervation of Renal Pedicle in Essential Hypertension.—Löwenstein and Weissmann point out that, whereas today blood pressure disease is regarded by the majority of clinicians as a functional disturbance of central origin, formerly it was considered generally the result of renal disease. Lately, however, the kidneys have been placed again in the center of the pathogenesis of hypertension. The experiments carried out by Braun and Samet were chiefly responsible for the renewed emphasis on the rôle of the kidneys in the pathogenesis of hypertension. Following a review of these studies and of the objections raised against it, Löwenstein and Weissmann report the clinical history of a woman with severe hypertension and retinitis. Since various therapeutic measures effected no improvement, it was decided to resort to denervation of the renal pedicle. The right kidney was decapsulated and the renal artery was exposed for a distance of 6 cm. The adventitia was removed and a cresol-phenol preparation was applied to the artery. This application resulted in necrosis of the tissues. Immediately after the operation, the blood pressure decreased considerably but the other symptoms were not changed. Moreover, the decrease in blood pressure was only temporary, for it soon increased again to the old level. The authors suggest that the decrease in blood pressure was not caused by the denervation but rather by the fever that followed the operation, for they repeatedly observed that intercurrent fever reduces a high blood pressure. They agree with F. Fuchs, who rejected the theoretical conclusions which Braun and Samet deduced from their animal experiments on renal denervation.

Novyy Khirurgicheskiy Arkhiv, Dnepropetrovsk

38: 1-320 (No. 1 and 2) 1937. Partial Index

Acute Diffuse Peritonitis and Its Treatment. V. N. Shamov.—p. 10.
Tuberculous Peritonitis. P. G. Chasovnikov.—p. 30.
*Treatment of Pneumococcic Peritonitis. E. Khr. Koch.—p. 48.
Treatment of Typhoid Perforative Peritonitis. M. A. Mir-Kasimov.—p. 56.
Treatment of Diffuse Peritonitis. A. A. Termeryan.—p. 58.
Pouring of Alcohol into the Peritoneal Cavity to Prevent Perforative Peritonitis. L. Ya. Kleiman.—p. 64.
Experimental Data Bearing on Treatment of Acute Generalized Peritonitis. K. F. Kaplan.—p. 65.

Treatment of Pneumococcic Peritonitis.—On the basis of his own material and of a review of the literature, Koch concludes that pneumococcic peritonitis is a disease of children of the preschool age and almost exclusively of girls. The sources of infection are the bowel, the appendix, the pleura and, in girls, the genitalia. Hematogenous infection following sore throat is possible. The symptom complex considered typical for this condition is rarely observed in practice, there being, as a rule, no pathognomonic signs of the disease. Differentiation from acute appendicitis presents great difficulties. Among suggestive symptoms the author mentions sudden onset, frequently preceded by diarrheal stools; herpes labialis, high temperature, rapid pulse, prostration, and a sharp neutrophilic leukocytosis. The finding of pneumococci in the vaginal smear is suggestive but not decisive. The finding of the pneumococcus in the blood favors definitely pneumococcic peritonitis. The history of a preceding angina, vulvovaginitis, bronchitis or pneumonia is suggestive. Palpation gives most valuable information. In acute appendicitis there is much rigidity, while in pneumococcic peritonitis the abdomen presents a soft doughy enlargement with marked distention and diffuse tenderness. The author does not employ abdominal puncture for diagnosis. Operative intervention is contraindicated in the stage of shock; e. g., during the first two or three days. It is likewise contraindicated during the stage of diffuse peritoneal inflammation, since the exudate does not cause paralysis of the intestine and the intervention at this stage diminishes the resistance of the organism and increases the toxicity of the pneumococcus. Operation is indicated in the stage of encapsulation. Autovaccines, serums and roentgen therapy during the first few days have not so far given definite results.

Hospitalstidende, Copenhagen

80: 589-600 (May 25) 1937

*Eosinophilia After Intravenous Injections of Oil: II. Relation of Bone Marrow and Significance of Spleen. J. Engelbreth-Holm and C. C. Winkel Smith. Statistical Assistance by G. Rasch.—p. 589.

Eosinophilia After Intravenous Injections of Oil.—Engelbreth-Holm and Smith conclude that the eosinophilia established in the blood after intravenous injections of oil is probably due to an effect on the bone marrow with new formation of eosinophil leukocytes in the marrow. During the course of this new formation the content of eosinophil cells in the bone marrow seems to undergo certain shiftings. The curve is wavy, with peaks on the fifth and the tenth day after start of the oil injections and above normal during the entire period. The curve may perhaps be explained as the resultant of two curves, one expressing the increased production of cells in the marrow, the other the increased transmission of cells to the blood stream, the two curves having a common peak but not running parallel. A possible relation between the number of cells in the marrow and in the blood can be established only by examination in series or by repeated frequent examinations. Intact spleen function is not necessary for the development of eosinophilia.

Ugeskrift for Læger, Copenhagen

99: 567-594 (May 27) 1937

*Chronic Fibrous Adhesive Pericarditis (Symphysis of Pericardium): Report on Fifty-Seven Necropsy Cases. H. C. A. Lassen.—p. 567.
Intrapelvic Pressure and Clinical Significance. J. Olesen.—p. 571.
*Investigations on Blood Sedimentation Reaction in Stored Blood. S. Christensen and S. A. Holbøll.—p. 576.

Chronic Fibrous Adhesive Pericarditis.—Lassen says that of the fifty-seven cases (in thirty-two men and twenty-five women, about half of them over 60 years of age, ten under 40) out of 1,601 necropsies from the medical division of the Kommunehospital, or between 2 and 3 per cent, the postmortem diagnosis was total symphysis of the pericardium in forty-two and almost complete obliteration of the pericardial sac in fifteen. In twenty cases there was history of rheumatic fever, in two of pulmonary tuberculosis and in nine of syphilis or active syphilitic infection at the time of death. In the majority, cardiac or circulatory disturbances dominated on final hospitalization. In thirty-three, cardiac insufficiency was assigned as the cause of death, in seventeen as a contributing cause, and in seven no sign of cardiac insufficiency was noted. The twelve cases are described in which the author believes that the diagnosis of cardiac symphysis might have been made clinically or suspected. He says that study of the operability of the fifty-seven patients on the basis of all available information indicates that probably none could have been operated on successfully. Two additional cases with clinical diagnosis of symphysis of the pericardium are reported in which operation is being considered.

Blood Sedimentation Reaction in Stored Blood.—Christensen and Holbøll find that even after from one to three hours the sedimentation values are lowered by about 10 per cent and after six hours by about 20 per cent. The reduction varies somewhat with different specimens. After twenty-four hours' storage the sedimentation values are always very low, on the average about one third of the values in fresh blood. Covering the blood with liquid petrolatum does not prevent the reduction of the sedimentation values of stored blood.